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ALWAYS ON THE ALERT

TO MEASURE EVEN THE LIGHTEST FLOWS

Empire VICTORY Meter

WITH THE SUPER-SENSITIVE BALANCED OSCILLATING PISTON

THE secret for the accuracy and durability of the Empire Victory Meter lies in the balanced oscillating piston design. The perfect balance in this piston is attained by the location of the web at the vertical center of the piston. The pressure on both sides of the web is thus equalized, resulting in a piston that practically glides between the top and bottom halves of the measuring chamber.

This virtually frictionless operation results in a sensitivity that catches and measures even the lightest flow rates.

The balanced oscillating piston is only one of the many features of the Empire Victory. Others include a triple rust-proofed cast iron outer case; the Pittsburgh-National developed all-glass register box; an interior design requiring only three bronze castings and no screws.

The Empire Victory is a war model meter only to the extent that in its construction 70 per cent of the bronze normally used has been conserved. Every precaution has been taken to produce a meter that will serve faithfully and always measure accurately during a long and useful life.

A Fully Protected Iron Case Water Meter with Clear Vision All-Glass Register Box

The Famous Empire Oscillating Piston Design, Responsible for the Accuracy and Long Life of All Empire Meters

PITTSBURGH EQUITABLE METER COMPANY

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MERCO NORDSTROM VALVE COMPANY
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LOS ANGELES MEMPHIS NEW YORK PITTSBURGH SAN FRANCISCO SEATTLE TULSA

INVEST TODAY IN BONDS FOR VICTORY

PITTSBURGH-NATIONAL *Water Meters*

Detailing a City's Post-War Projects

Albuquerque Sets Forth Its Three-Year, $3,582,500 Program of Municipal Improvements

THROUGH the courtesy of Clyde Tingley, Mayor and Chairman of the City Commission of Albuquerque, New Mexico, THE AMERICAN CITY is enabled to present the following detailed statement of projects being planned as a three-year post-war construction program by this city of some 35,000 population. The proposed method of financing is given in italic type at the end of each item.

Storm Sewers—$307,000

Construction of storm sewer lateral system for the collecting and disposal of storm water from the eastern section of city; including approximately 88,000 lineal feet of reinforced concrete pipe, varying in size from 48 in. to 10 in. in diameter; excavating, installation of pipe, branches, inlets, gratings, and connections; construction of brick manholes with cast iron covers; backfilling, etc.

Bond issue supplemented by Federal aid.

Sewage Pump Stations—$8,500

Construction of pumping plant for lifting storm water in storm sewer collecting and disposal system; reinforced concrete, 2 compartments, underground pump sump, 15'x23'x12' deep with reinforced concrete roof; containing manhole and C. I. cover; fully equipped with inlet and outlet, electrically driven pump with automatic controls; necessary piping, fittings, etc.

Bond issue supplemented by Federal aid.

Auditorium—$500,000

Construction of a 1- and 2-story municipal auditorium building to consist of auditorium, stage, dressing rooms, etc., full basement with show room for auto shows, dances, banquets, etc.; concrete brick and steel construction; 86,700 sq. ft., 2,000,000 cu. ft.; concrete foundations; concrete construction in basement; reinforced concrete structural frame; concrete stairs; brick exterior filler walls; brick and hollow tile partitions; concrete floor construction; steel roof trusses and purlins; concrete roof slab and clay tile roof over auditorium; concrete roof construction, composition roof elsewhere; cement, tile, marble, linoleum and wood finished floors; steel windows; hollow metal doors and frames; stuccoed exterior.

Bond issue supplemented by Federal aid.

Addition to Library—$15,900

Construction of one storm addition, with full basement, to municipal library; stack and reading rooms on first floor; work room and two storage rooms in basement; concrete, brick and frame construction; 3,000 sq. ft.; 40,000 cu. ft.

Bond issue supplemented by Federal aid.

Park Improvements—$30,000

Construction of concrete sidewalks, curbs and gutters, tennis courts, playgrounds, playground equipment, landscaping, zoo improvements, installation of sprinkler systems, etc., in Rio Grande Park, Monterey Hills Park and McDuffie Park.

Bond issue supplemented by Federal aid.

5,000,000-Gallon Reservoir—$80,000

Construction of five million gallon reinforced concrete water storage reservoir with concrete cover, 160' inside diameter, 24' deep, with hoop steel stress bands, controls, concrete stair on fill slope, 8' steel industrial fence; concrete and brick pump house, 6,500 cu. ft., with incidental and other appurtenant work.

Current Water Department revenue supplemented by Federal aid.

Wells and Lines—$94,700

Drilling of six water wells approximately 350 ft. deep; installation of 14" casings, etc. Construction of pumping plants, laterals and water supply main including installation of six 12" electrically driven deep well pumps, valves, fittings, controls and concrete foundations. Construction of six small movable pump houses; frame construction 96 sq. ft.; 900 cu. ft. Construction of approximately 2,000 lin. ft. 8" C. I. laterals from wells to beginning of proposed main; construction of approximately 8,980 lin. ft. of 18" C. I. water supply main from Ruby Street along Broadway to Tijeras Avenue pumping station.

Current Water Department revenue supplemented by Federal aid.

Street Paving—$500,000

Project to operate on the urban system. High type surface (bituminous penetration) 40' wide with incidental and appurtenant work. 10.23 miles.

Property assessment supplemented by Federal aid.

Viaduct and Underpasses—$1,500,000

Trumbull Avenue viaduct—Project to operate on the urban system; 1,380' concrete and steel structure on concrete piers, 24' clearance over tracks. High type surface (concrete) 40' wide with curb, gutter; 6' sidewalk and handrail on each side. 0.26 mile.

Underpass at Mountain Road and railroad tracks—Project to operate on urban system. 600' concrete and steel structure on concrete abutments; 14' clearance under tracks; high type surface (concrete) 30' wide with gutter, curb and handrail, 5' sidewalk each side. 0.11 mile.

New York underpass—Project to operate on urban system. 600' concrete and steel structure on concrete abutments, 14' clearance under tracks; high type surface (concrete) 30' wide, with gutter, curb, handrail 5' sidewalk each side. 0.11 mile.

Marquette underpass—Project to operate on urban system; 600' concrete and steel structure on concrete abutments, 14' clearance under tracks; high type surface (concrete) 30' wide, with gutter, curb, handrail, 5' sidewalk each side. 0.11 mile.

Method of financing not determined.

Longfellow School Underpass—$26,300

Project to operate on the urban system. 300' concrete and steel structure, three 16' spans on stone piers and abutments, 8' clearance, high type surface (bituminous penetration) 40' wide, with curb and gutter, 5' sidewalk, retaining wall and handrail each side. 0.06 mile.

Bond issue supplemented by Federal aid.

Street Lighting—$40,800

Installation of street lights on 40 blocks of streets, including laying of cables, erection of the pole lines, erection of lamp supports, installation of lamps, etc.

Property assessment supplemented by Federal aid.

Addition to Fire Alarm—$50,000

Construction of electric fire signal system between central fire station in City Hall and four sub-fire-stations located in north central, east central, south central and west central sections of city, respectively with lateral feeder lines from sub-stations to various fire alarm boxes in vicinity. Work includes installation of underground electric lines, street pole equipment, sub-station equipment, central station equipment, together with adequate inter-communication facilities between central and sub-stations; system to be equipped with storage batteries; approximately 60 alarm boxes, 10 miles of lateral feeder lines, 8 miles of main lines, etc.

Current revenue supplemented by Federal aid.

Street Widening—$20,000

Project to operate on the urban system. High type surface (bituminous penetration) 5' strip each side of present roadway, with removal of existing curbs and gutters and sidewalks; reconstruction of sidewalks, curbs and gutters. 2.04 miles.

Current revenue supplemented by Federal aid.

Sanitary Sewers—$100,000

Construction of approximately twelve miles of additional sanitary sewers, varying in size from 24" to 8", including mains, sub-mains, laterals, interceptors, manholes, wyes, etc., with incidental and other appurtenant work.

Bond issue supplemented by Federal aid.

Sewage Treatment Addition—$65,000

Construction of reinforced concrete clarifier tank with steel wier, clarifying unit, pumps, equipment, etc.; 80' inside diameter, 12' deep; reinforced concrete trickling filter tank with rotating distributor, classified rock fill, pumps, equipment, etc., 180' inside diameter, 9' deep.

Bond issue supplemented by Federal aid.

Addition to Jail—$15,900

Construction of additional men's cell blocks and day room in present city jail; thirteen 4 prisoner cells with day room; complete with modern locking device, lighting, plumbing fixtures, etc.

Bond issue supplemented by Federal aid.

Shop Building—$18,400

Construction of shop building for general repair and maintenance work for all departments of the city; one story; shop with bench spaces, machine tool areas, greasing pit for trucks, etc., traveling overhead crane, tool room, parts room, office, meter testing room, toilet facilities, etc. Concrete steel and brick construction; 3,750 sq. ft.; 75,000 cu. ft.

Current Water Department revenues supplemented by Federal aid.

EDITORIAL NOTE—In the series of articles and items on post-war planning which THE AMERICAN CITY has been publishing since November last, reports from most cities have necessarily been summarized with great brevity. The foregoing statement from Albuquerque is presented as an example of detailed planning which this magazine cannot ordinarily report but which other cities might well emulate. It is especially desirable, of course, that individual projects be properly related to a carefully prepared Master Plan for future city development.

GIVE HIM A BREAK!

Evening is about his only chance to telephone home. He can get through easier if the wires aren't crowded—and his calls mean so much to him and the home folks. So please don't call Long Distance between 7 P. M. and 10 P. M. unless your calls are really necessary.

Many thanks.

BELL
TELEPHONE
SYSTEM

Our Municipal Notebook

Post-War Use of OCD Skid Pumps

AMERICA today has become extraordinarily fire conscious, and may not look with favor on junking or selling for scrap the thousands of items of fire-fighting equipment provided for civilian defense. What is the logical use for this equipment such as pumps, hose, ladders, nozzles and helmets?

It must be recognized that these items are not of the most modern and useful design for municipal fire protection, and that they should not take the place of regular equipment specifically designed to meet the demands of municipal fire departments in capacity, maneuverability, safe transportation of manpower, and greater dependability. Moreover, modern equipment will be constructed of materials which have not been available because of priorities.

Every city and town in the country could well use a number of pumps suitable for pumping out basements and cellars and other emergency dewatering as in the case of floods, natural or from fires. Too often the regular pumping engine is used for this work with serious results.

The Federal Government in its highway work could use pumps in connection with road building, construction of dams, and general dewatering on construction projects. Increased attention also will be given to forest conservation, including forest fire-fighting.

Many small water works depend for operation on a single electrical circuit to the pumping station. These gasoline-driven skid-mounted pumps could serve as a standby. They occupy only 3 x 6 feet and can pump over 800,000 gallons a day.

An increasing number of industrial plants buy electric power instead of using steam, and thus should have a second source of water for fire protection. They need a reserve which could be furnished by these skid pumps which the Federal Government could offer to sell them.

Fire losses on farms has been exceedingly high for years. Farms cannot afford to buy apparatus. But a farmer could readily maintain a skid pump or trailer pump for fire protection. The Federal Government could afford to distribute skid-mounted and trailer pumps among the farms. The rural territories would be benefited by this policy. The logical procedure would seem to be to form groups of ten or more farmers in a territory and give them a pump. The cost of such a pump is in the order of $500, or a tenth of what a minimum pumping engine would cost. Its value as junk is about $50. Thus this is a constructive use. The transition, moreover, should be direct from the cities to the farmers and not by way of a warehouse where the pumps could rapidly deteriorate. Now is the time for OCD to develop a definite program to be submitted to Congress.

Chevrolet truck chassis mounting a skid pump. Photograph sent THE AMERICAN CITY *by Director of Public Safety, Philip Shay, Williamsport, Pa.; M. E. Clark, Fire Chief.*

Present Use of OCD Equipment

THERE have been several cases where a question has arisen as to whether or not a Local Commander upon whom the responsibility for the protection of his community is placed has the authority to distribute the equipment and material loaned to him for the protection of his community outside of its corporate limits. Not only is this possible by the interpretation of the intent of the acts above, but it is also specifically permitted by Section (a) of Paragraph 7 of Regulations No. 1, where it is stated as follows: "Each Local Property Officer shall distribute the property received . . . to responsible and qualified individuals . . . in . . . his community or the territory adjacent thereto." Etc.

It is very evidently again the intent of the regulations to allow discretion and flexibility to the local authorities in the use of OCD equipment to protect their individual communities and wherever any questions arise as to the legality of distribution outside of corporate limits, the interpretation should be based upon the actual advantage of such distribution rather than any interpreted restrictions which may appear, it being the very evident desire of the President and Congress to apply OCD loaned equipment to the greatest possbile number and to the greatest possible advantage for appropriate protective purposes.

GENERAL U. S. GRANT, 3RD,
Chief of Protective Branch, OCD, in July 15, 1943 American Municipal Association "State League Notes."

$50,000,000 for Planning Highways

Under Public Law No. 146, signed by the President on July 13, there is set up a $50,000,000 planning fund to be apportioned among the states in accordance with the provisions of Section 21 of the Federal Highway Act. Allocation of this fund (to be matched by the states) is listed in *Legislative Lookout* of the American Road Builders' Association for July 15.

2 MORE U.S. ARMY TRAINING CENTERS

Served by Modern ELEVATED STORAGE

★ ★ ★ ★ ★

JUST as many municipalities have solved their water supply problems with elevated storage, so have numerous army camps and training centers specified this dependable type of storage as integral parts of their water supply systems.

Two typical examples are shown here:

Above is a 300,000-gal. Horton elevated tank, one of five tanks at a Southern camp. The combined capacity of the tanks is 1,318,000 gals., sufficient to provide uniform gravity pressure for the entire water supply system. The tanks are well distributed to serve individual areas to the best advantage.

The Horton elevated tank at the left is located at a Southern Army Air Corps field. It is a 500,000-gal. unit installed to provide gravity pressure to meet general water requirements. The ellipsoidal bottom and roof help to reduce the range in head, resulting in a more constant pressure in the mains.

Both installations provide for pumping during off-peak periods and the maintenance of an ample reserve of water for fire protection.

(U. S. Army Air Corps Photo)

The Army-Navy "E" flag now flies over our shipyard at Seneca, Ill. and dry dock yards at Eureka, Calif. and Newburgh, N. Y.

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NEW YORK • CHICAGO • TULSA
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Water-Works Operation

Added Water Supply at Fayetteville, N. C.

THE completion of the new 3,000,000 gallon per day addition to the present filtration plant at Fayetteville, N. C., will be one of the final steps in putting this city's water works into first-class shape to carry its important war load. At present City Engineer W. W. Baker reports that this project is approximately 60 per cent complete. The extension to the filtration plant is being built so that one, two, or three equal units can be added at any time they are needed.

The new storage tank serves the lower section of the city where the business area is located and holds hydrant pressures to 75 or 80 pounds. The reservoir floats on a line that connects with a second reservoir at a much higher elevation and is protected against excessive pressures by the controlling action of Roberts automatic altitude valves.

Bi-Monthly Bills

ON the first of July, the Department of Water and Power of the city of Los Angeles began billing its residential customers every other month instead of every month as had been its practice in the past. Approximately 257,000 homes were "skipped" in July and will receive a special announcement reminding them that they will have no bills that month. In August, this group received the first two months' statement.

Officials in the department state that no change in rates or method of payment is involved. Bills will continue to be due on presentation and must be paid within 15 days.

The change became necessary because of the 1,123 department employees already in the nation's armed forces and many more facing induction.

Locating Pipe

OUT in Pasadena, Calif., if anyone wants to know the location of a pipe in the Water Department system, Chief Engineer Morris S. Jones can arrange to tell him within a few inches. This means more than a carefully prepared set of records. It shows the result of using the M-Scope pipe locator.

The water department in Pasadena is using two of these pipe locators and one leak detector. "We have found

The Fisher M-Scope in the process of tracking down a pipe under the pavement.

these instruments invaluable," states Mr. Jones, "and would hate to be without them. Our experience with the pipe locator has been in general that we can find the pipe within a few inches of the location as given by the instrument. When the location is off more than that distance, it usually is because of interference from other buried pipes."

The instrument is easy to operate, he states. Anyone who can follow directions can get good results, and can trace pipe without becoming confused by the effects of other pipes located near the one being traced. The instruments also will locate many other buried objects, such as cast iron sewer laterals and cables. Department officials even have located sewer lines connected to tile sewers down to a depth of 9 feet. One operator found a buried metal coffin in an abandoned cemetery.

John W. Alvord Dies: Chicago Consultant

JOHN WATSON ALVORD, veteran consulting engineer, died at his summer home in Douglas, Mich., on July 31 at the age of 82.

Mr. Alvord, senior member of the firm of Alvord, Burdick and Howson, of Chicago, entered private practice in 1913. In cooperation with partners he has served approximately 300 municipalities in the construction of water supplies and sewerage projects.

He was a past president of the American Water Works Assn., an honorary member of the American Society of Civil Engineers, and past president of the Western Society of Engineers.

Mr. Alvord was an outstanding example of a "self-made" engineer since his formal technical education was limited. In 1913 he received an honorary degree of civil engineering from the University of Wisconsin.

Water Treatment for Tooth Decay Prevention

FLUORINE, for years the chemical black sheep in the water-works field, is now disclosing some heretofore unrecognized virtues. According to David B. Ast, Assistant Director for Oral Hygiene in the New York State Department of Health, the use of fluorine may be the means of inoculating the public against the ravages of tooth decay.

Previous studies, Dr. Ast points out in the June 4 bulletin of the U. S. Public Health Service, *Public Health Reports*, concerned themselves chiefly with the mottling effect of fluorine on the tooth enamel, and water-works officials felt that their primary responsibility lay in discovering methods of eliminating this chemical from the public drinking water.

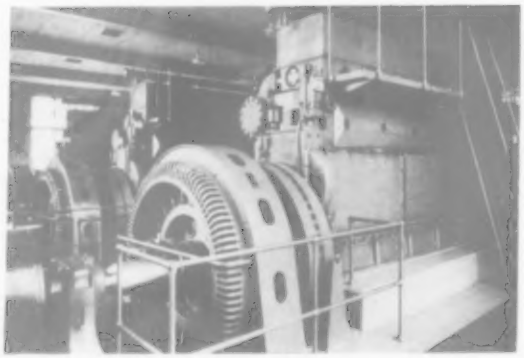
"As studies progressed," states Dr. Ast, "the relationship of a low caries (tooth decay) rate to the fluorine content of water became evident and this discovery opened a field of tremendous importance."

Dr. Ast states that present investigations indicate the apparent safety of small doses such as 1.0 ppm fluorine in the water. He urges that further experiments be conducted in selected communities to test the efficacy of the treatment.

A dosage of 14.7 pounds of sodium fluoride per million gallons would produce 0.8 ppm fluorine in the water, he states. This could be added by any standard hypochlorite feeder.

Dr. Ast added that sodium fluoride should be added to alum-treated water after filtration to prevent the possibility of the coagulant's removing any of the added fluoride.

Here's a Pattern FOR COMMUNITY POWER



DIESEL ENGINES 150 to 1500 hp.

GAS ENGINES 175 to 2880 hp.

CONVERTIBLE GAS-DIESEL ENGINES 150 to 1500 hp.

TO ALL FOUR WORTHINGTON PLANTS FOR EXCELLENCE IN WAR PRODUCTION

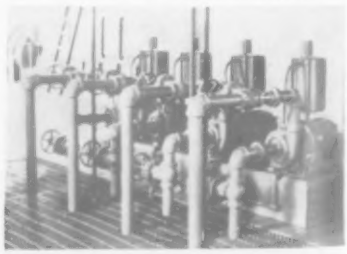
An interesting example of rural community power planning, in cooperation with the Rural Electrification Administration, is the recently completed plant of the Western Michigan Electric Cooperative.

Here three Worthington 595-horsepower fully-enclosed diesel engines, driving synchronous generators, furnish economical power to nearly 1200 consumer-members on 340 miles of line. With its integrated Worthington auxiliary equipment as an assurance of uninterrupted operation, this station is regarded as a model of completeness and advanced methods. Now doing its part in providing power for war services, it stands ready to meet the expanded post-war needs of a forward-looking community. No section of the country is too remote for this kind of modernization.

Air compressors for starting

Rotary pumps for fuel oil transfer

Centrifugal pumps for jacket water circulation



DES-4

WORTHINGTON

WORTHINGTON PUMP AND MACHINERY CORPORATION • HARRISON, NEW JERSEY

Refuse Collection and Street Cleaning

A view of the Indiana Highway Commission's trailer-mounted street sweeper used to clean portions of the highways that pass through municipalities.

How the State Helps Clean Indiana Streets

IN Indiana, the State Highway Commission assumes responsibility for the maintenance of state and federal routes through all cities and towns except Indianapolis. This maintenance includes the repair and cleaning of streets. Some of the larger cities own street sweepers that they rent to the Commission. However, many of the smaller cities do not have this equipment. To clean streets in these towns, the Commission purchased several small motorized Hough and Austin-Western sweepers and operates them on a regular schedule, transporting them from city to city on trailers.

Garbage Collection on a Fee Basis

GARBAGE collection is passing from a municipally financed service to a type of self-supporting utility such as water or electricity and to a certain extent sewage, if indications from three Ohio cities are significant. In these cities — Columbus, Youngstown, and Portsmouth — garbage and refuse collection fees are levied to help finance the cost of collection.

Columbus, a city of 306,000 population, charges its residents $4 a year for each family dwelling and each family in a multiple dwelling, with the fee payable on a quarterly basis. Business houses must pay 2 cents per gallon of garbage, 10 cents per barrel of rubbish, and 10 cents per bundle of rubbish; the fee to be paid on a monthly basis. The city expects to raise $350,000 annually to match costs. Disposal is made by incineration.

Youngstown charges a weekly fee of 50 cents that applies only to garbage. This must be placed in cans of from 10 to 30 gallons capacity. Collection cards, covering periods of three months or a year, must be purchased from the city finance director and displayed in an observable location—preferably a window. Business houses must pay extra fees for collection of commercial or industrial waste in excess of one 30-gallon can a week. Youngstown, a city of 167,000, expects to raise $150,000 from the fee, or more than enough to meet costs.

Portsmouth (40,000 population) expects to receive $35,000 this year from its new charge of 60 cents a month to each householder for collection of garbage only. Householders desiring service must buy quarterly cards from the city auditor. Ashes and rubbish are collected free of charge.

Non-Critical Garbage Cans

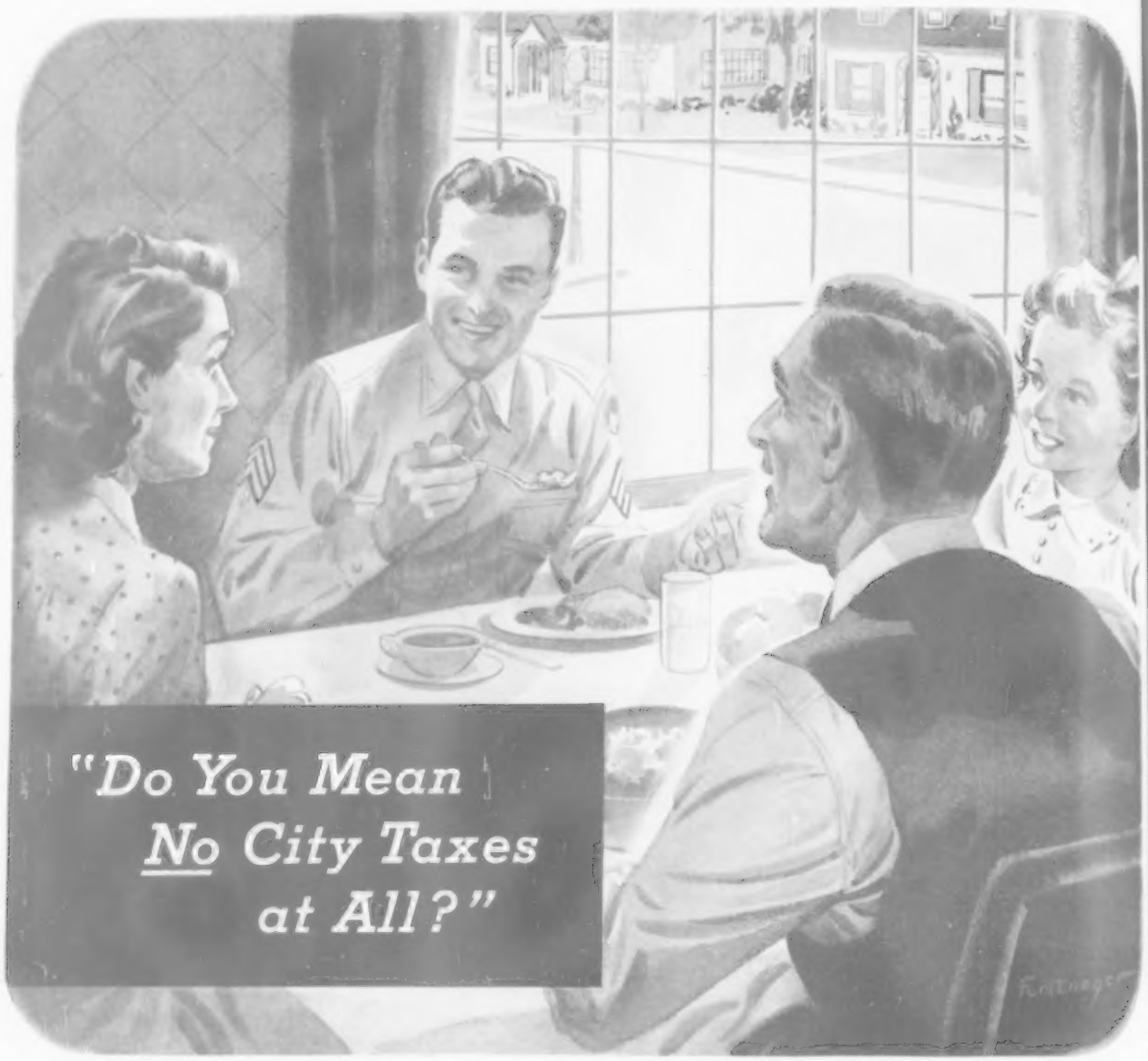
GARBAGE cans soon may be manufactured from a number of substitute materials to offset the shortage of metal containers, according to the American Public Works Association.

The Governmental Division of WPB is already studying garbage containers made from wood, ceramics, or plastics. Cans have been developed using asbestos and cement. However, the manufacturer of this material is heavily engaged in war work and reports that he is unable to develop plant capacity.

Substitute cans made from fibre and pregnated asphalt have been patented, but not yet manufactured; while some developments are being claimed for an impregnated paper container which, it is asserted, can be produced at the rate of 5,000 per day.

A plywood refuse container has entered the market on the West Coast in 10, 16, or 25 gallon capacities. It is constructed of three-ply, 3/16-inch Douglas fir plywood, bonded with phenolic resin. The top and bottom are of the heavier plywood material. The interior of the receptacle is protected by a wood sealer and three coats of acid-resisting, non-corroding, black asphalt varnish mixed with graphite.

A model T2 Traxcavator is shown here hard at work cleaning the snow from the streets at Englewood, Colo.



YES, Joe, that's the goal we are shooting at. While you were away, our city officials did some "longheaded" planning. Realizing that postwar Federal taxes couldn't be lowered for years, they looked for ways to lower city taxes.

So they installed a Fairbanks-Morse Diesel operated power and light plant as soon as the equipment could be purchased. City taxes have already been reduced, and we're paying less per kilowatt than ever before.

★ ★ ★

Now is the time to make the plans for reducing your postwar city taxes with Fairbanks-Morse Diesel Generating Units. Many cities and towns using low-cost Fairbanks-Morse Diesel power have eliminated them altogether.

★ BUY WAR BONDS ★

FAIRBANKS-MORSE

DIESEL ENGINES
PUMPS
MOTORS
GENERATORS
SCALES

WATER SYSTEMS
FARM EQUIPMENT
STOKERS
AIR CONDITIONERS
RAILROAD EQUIPMENT

Diesels

Sewerage and Sewage Treatment

Getting the Facts on Sewer Service Charges

THERE will be nothing wrong with the sewer service ordinances that Concord, N. H., plans if City Engineer Edward E. Beane and the Concord Planning Board have their way. Together they prepared a comprehensive study of this arrangement of financing sewerage services directing their work particularly to conditions in Concord.

In analyzing the problem they discovered that the rate structure fell into six broad classifications. These are as follows in the order of their preference:

Metered Water Consumption: This bases the charge on the amount of water used. They believe it to be the most equitable method of billing and particularly well suited for conditions in their city. However, they recognize that adjustments in costs should be considered on the basis of the oxygen demand of the sewage.

Number and Kind of Plumbing Fixtures: This method they observed has the feature of favoring the poorer classes and is useful when water service is not metered. However, it requires as close check of the fixtures as possible under a strictly maintained system of plumbing permits.

Type of Property was not their choice. This may be based on the size of the building, the number of apartments or rooms, and requires many classifications. Some injustices are bound to arise they point out.

Number of Sewer Services Connected: This system is based on the not wholly justified presumption that the number of service connections indicates the amount of sewage. While it is useful in small communities they cannot recommend its adoption for Concord.

Size of the Water Meter: This method they point out is easy to administer. However, it is only a rough measure and does not distribute the costs equally.

Flat Rate: This system is last on the list of recommendations for Concord. Although it is simple to put into operation, it forces the small user to pay the same as the large, and its use, they feel, should be limited only to small or residential communities.

Some attention was given to the possibility of making the charge on the basis of metered sewage. However, in their opinion, accurate meters for this type of work have not yet been developed, consequently making a rate schedule on this basis impractical.

Concord does not have a sewage treatment plant at present, and discharges the raw sewage directly into the Merrimack River. Revenue to be raised is for maintenance and new construction for sewers alone and not for treatment. Officials state that they anticipate being faced with the necessity of treatment in the not-too-distant future.

Regional Plan Adopted to Meet Sewerage Problem

THIRTEEN communities and the state agreed recently on a cooperative course of action to solve a serious sanitation problem in the Detroit area, the American Public Works Association reports. This involved the discharge of untreated sewage by these communities, thereby polluting the Clinton River and some parts of Lake St. Clair.

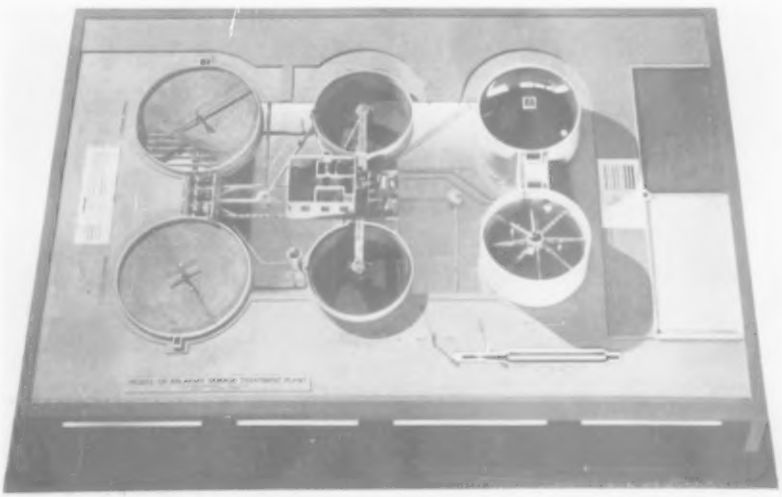
As a result of the joint agreement, work has been started on a 5-foot 6-inch tunnel intercepting the sewer systems of the various communities and on a pumping station to lift the sewage to a gravity flow section intercepting the tunnel. By means of diversion chambers, storm water will discharge into the creek, while the sanitary sewage will enter the tunnel and proceed to the Detroit sewer system for treatment and disposal.

How the Army Teaches Sewage Treatment

OPERATORS of Army sewage treatment-plants get thorough training in basic sewerage fundamentals by the use of this carefully prepared model plant built to the scale of $\frac{1}{4}$-inch to one foot.

Illustrating the two-stage biofiltration process with provision for single-stage operation if desirable, it is typical of designs for permanent Army posts where the anticipated sewage flow per day is estimated at 550,000 gallons. It consists of a grit chamber, parshall flume, mechanically cleaned bar screen, primary and secondary clarifiers and high-rate filters with recirculation pumps, two-stage digesters with heating coils in the primary digester and a floating gas collection cover on the secondary tank, and sludge-drying beds.

The cut-away model has the advantage of clearly showing the pipe arrangement so that it may be easily visualized by men who are not skilled in reading blue-prints. It illustrates how the various units may be bypassed if necessary and graphically demonstrates the plant flexibility for single or multi-stage operation.



A view of the Army's scale-model sewage-treatment plant used for instruction purposes. From left to right may be seen the biofilters, clarifiers, digesters, and sludge beds. As may be seen, the units are installed in pairs. The grit chamber and parshall flume are shown at the lower right. Connecting piping, circulating pumps, control house, and laboratory all are visible in the cut-away view.

FLAMEFOIL FINISHED CANVAS PREVENTS FIRE

CATASTROPHE

Canvas is inflammable. Put a match to untreated canvas and it will burn like paper. A potential source of fire loss! ★ Take a piece of Flamefoil Finished canvas. Put a blow-torch to it (not merely a match!). It will only char in the fire area. No flame. No blaze. ★ If you are a user of canvas merchandise . . . that's your answer to the fire hazard! ★ Flamefoil Finish, a triumph of modern chemistry, offers the following 4-point protection for your canvas: • Makes canvas flameproof. • Makes canvas waterproof. • Resists ravages of mildew, mold, and other bacteria causing canvas rot. • Increases canvas tensile strength. ★ When buying canvas or canvas products . . . consider Flamefoil Finish your insurance. Inexpensive . . . costs only a few cents per yard! Ask for it by name.

Write to canvas dealer nearest you for names of manufacturers making the Flamefoil Finished canvas products you need.

Manufactured by PHILADELPHIA TEXTILE FINISHERS CO., Inc.

WILLIAM L. BARRELL COMPANY, INC.

SELLING AGENTS

40 WORTH STREET, NEW YORK, N. Y.

Street Construction and Maintenance

This Month's Guest Editorial

Asphalt Goes to War

THE road to victory is paved with asphalt.

American bombardiers now blasting Axis bases and fortifications and fighter pilots swooping down on enemy planes and troop concentrations learned the tricks of their trade on asphalt covered training fields. Taking off and landing on runways made of asphalt, other young aviators are learning to follow the paths of glory blazed by such men as Colin Kelly and Buzz Wagner. On taxi ways and landing strips and wide aprons of asphalt the Army Air Forces begin their flights to victory.

Workers making asphalt are doing a first and fundamental job in preparing the Army Air Forces for their devastating attacks on Germany, Italy, and Japan. U. S. planes fighting from New Guinea to North Africa are a long way apart, but they all took off first from asphalt landing strips in the United States. Even planes going out to combat depend on good asphalt runways. Our planes taking off from continental bases in their ceaseless search for Nazi sub raiders are all based on asphalt fields. And many of the planes which are pounding the Jap bases in the Aleutians are taking off from asphalt strips in Alaska.

The Army's Ground Forces also depend on asphalt. The vast network of roads in military establishments all over the United States would more than provide three 20-foot highways from New York City to San Francisco, and many of these roads are built of asphalt. Over them travel an endless parade of Army vehicles including everything from jeeps to General Sherman tanks, from scout cars to the self-propelled 105 mm. howitzers that blasted Rommel's Africa Korps.

During the last six months of 1942 the United States Army used about 693,000,000 gallons of asphalt for all these purposes in the United States, its Atlantic bases and its supply divisions overseas. Some 30,000,000 gallons were used for paving and roofing overseas during this same period, and that does not include any of the uses to which it may have been put in our great North African campaign.

Asphalt is really at war. General Nathan Bedford Forrest told the whole story years ago when he said, "The art of war is to get there fustest with the mostest." You can't get there at all unless you have the buildings to house and supply your men and the roads to travel on. Asphalt, by providing the United States with both, is helping it smash the Axis.

Major Roswell P. Rosengren,
Chief Office of Technical Information,
Army Engineer Corps.
(From the June *Elbee Tatler*)

Tree Planting Schedule

TREES are generally considered to be good examples of the beautiful handiwork of Mother Nature, but to listen to irate citizens damn them during the meetings of the Planning Commission of the City of Coronado, one would be led to believe that they were creatures of the devil.

In Coronado the street trees are planted in a 7-foot parking strip adjacent to the curbs on both sides of the street. These trees are the property of the city, but for years the tree planting schedules have been twisted out of shape by property owners who always wanted some specie of tree planted other than scheduled type. The arguments used were that the scheduled tree gave too much shade or not enough, or it dropped too many leaves, or had too many roots, or didn't go with the architecture of their homes.

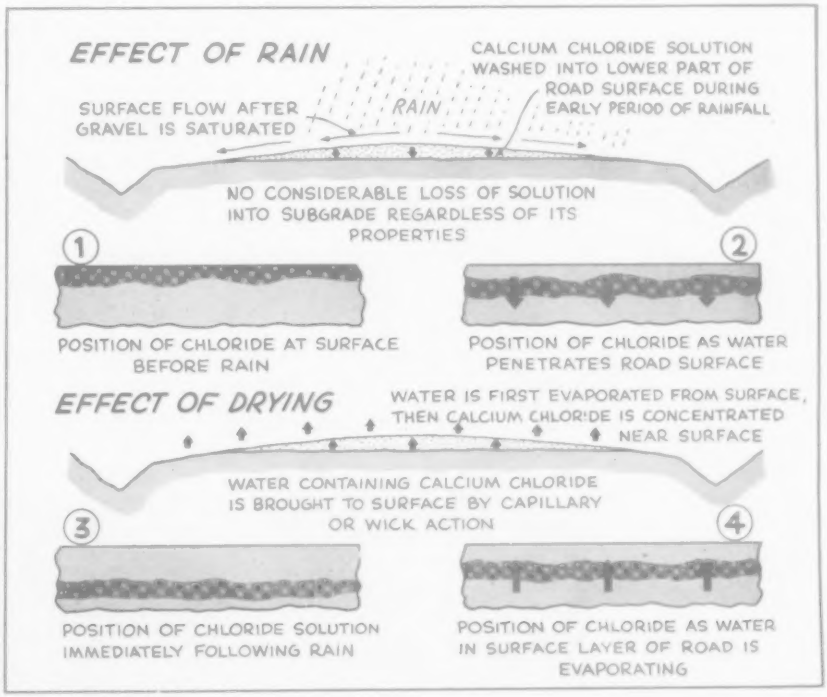
But as the old saying goes "where there's life there's hope," and a few years ago the Commission started from scratch and has now evolved a plan that, while not suiting everyone, is believed to be for the best interests of the community at large. At the present it appears that the city will remove any old diseased trees and replace them with stock that conforms to the schedule. Healthy non-conforming trees may be removed by the property owner if he replaces them with the specified varieties.

R. W. Rink,
City Manager,
Coronado, Calif.

How Calcium Chloride Weathers a Rain

CONTRARY to common observations, calcium chloride is not washed away from the roadway surface after a rain. Data published by The Dow Chemical Co., Midland, Mich., shows how this calcium chloride solu-with stock that conforms to the sched-the gravel base by the rainstorm and returns to the surface to aid in compaction when the storm is over.

DOW CHEMICAL CO. DRAWING


EFFECT OF RAIN
CALCIUM CHLORIDE SOLUTION WASHED INTO LOWER PART OF ROAD SURFACE DURING EARLY PERIOD OF RAINFALL
SURFACE FLOW AFTER GRAVEL IS SATURATED
RAIN
NO CONSIDERABLE LOSS OF SOLUTION INTO SUBGRADE REGARDLESS OF ITS PROPERTIES
1
2
POSITION OF CHLORIDE AT SURFACE BEFORE RAIN
POSITION OF CHLORIDE AS WATER PENETRATES ROAD SURFACE
EFFECT OF DRYING
WATER IS FIRST EVAPORATED FROM SURFACE, THEN CALCIUM CHLORIDE IS CONCENTRATED NEAR SURFACE
WATER CONTAINING CALCIUM CHLORIDE IS BROUGHT TO SURFACE BY CAPILLARY OR WICK ACTION
3
4
POSITION OF CHLORIDE SOLUTION IMMEDIATELY FOLLOWING RAIN
POSITION OF CHLORIDE AS WATER IN SURFACE LAYER OF ROAD IS EVAPORATING

© 1943 Great American Industries, Inc., Meriden, Conn.

Military requirements called for hundreds of efficient pumpers — quickly — to combat all kinds of fires which might threaten stores and equipment.

As producers of fire apparatus for many years, it was natural that Ward LaFrance received the assignment. Standard truck chassis were converted into 500 gallon-per-minute pumpers, reinforced and equipped for their special job.

Ordinarily, it is preferable to design and build special trucks "from scratch". In this case it was practical to convert standard trucks to special-purpose use, because of the availability of the chassis units.

The moral is: It pays to consult Ward LaFrance when you are considering the purchase of equipment to meet the special needs of your community. Use the experience and knowledge of our engineering specialists. In that way, you'll get maximum protection at minimum cost over the life of the apparatus purchased.

WARD LAFRANCE TRUCK DIVISION

☆ GREAT AMERICAN INDUSTRIES ☆

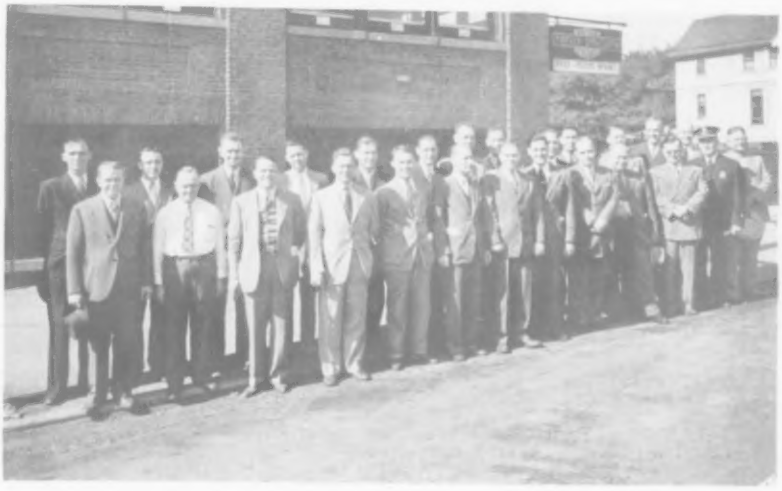
ELMIRA, NEW YORK

WARD LAFRANCE

Public Safety

Traffic Cut in Half on Rural Roads

TRAFFIC on rural roads in the East has decreased in the six months from December through May to less than half of pre-war normal, the Public Roads Administration of the Federal Works Agency reported in announcing the May records of 519 automatic traffic counters in 40 states. Motor-fuel tax collections totaled more than $31,000,000 in 28 states in May and indicated that total urban and rural traffic in the East used about 52 per cent as much gasoline in April, 1943, as in the same month in 1941. In the area rationed last December 1, gasoline consumption in April was about 73 per cent of pre-war normal. For the entire country, April consumption amounted to about 64 per cent of pre-war normal.



The happy-looking youngsters shown above, at the factory of Harley-Davidson Motor Co. in Milwaukee, Wis., in their bread-earning moments are the stern-visaged officers shown below. These are two photographs of the Spring-Summer Class of 1943 of Northwestern University Traffic Institute, Evanston, Ill. How many can you match in the two views? Not many? That is one reason why a plain-clothes man can get a great deal done, with no more disguise than doffing his uniform. The officer in mufti looks as prosaic as the rest of us. Put him in twill or poplin, with badge, belt and ominous bulge, he rises above us like a protecting barrage balloon, a pain to the violator and a comfort to the public. A civilian on a motorcycle is nothing to gape at, but a motorcycle officer is a man to watch, for he certainly does get around.

OCD Gives Target Cities Ambulances

MOST American cities have insufficient ambulances to meet emergency demands in the event of an enemy air attack, James M. Landis, Director of Civilian Defense, said in announcing plans for distribution of 800 four-stretcher ambulance bodies to cities in target areas.

These ambulance bodies, mounted on the rear portion of the chassis of a Ford, Chevrolet, or Plymouth four-door sedan, carry four stretchers on built-in racks. The body has been approved by the Corps of Engineers of the Army. The ambulance bodies will be distributed free of charge by OCD to selected communities, but because of the limited number available, will be sent only to cities in exposed areas—and then only after the city has notified OCD that the chassis on which to mount them will be furnished.

Blood Plasma for Civilian Use

PLASMA required for the treatment of victims of war-related injuries and major civilian catastrophes is now readily obtainable in any community through its Chief of Emergency Medical Service, according to the Medical Division of the Office of Civilian Defense.

With funds made available through the United States Public Health Service, the OCD has given financial and technical assistance to hospitals throughout the United States in establishing blood and plasma banks. Some 150 hospitals chiefly in the target areas, have received grants-in-aid and are preparing plasma to total at least 70,000 units. In addition, 29,500 units of frozen plasma, collected by the American Red Cross, have been distributed. The Medical Division of OCD also is distributing 50,000 units of dried plasma from blood collected by the Red Cross. Local Chapters of the Red Cross have available, in addition, 5,000 units for emergency service.

To assist in emergency work when the plasma may be required, the Medical Division of OCD has issued its publication 2212, "The Clinical Recognition and Treatment of Shock," which is now available for distribution.

Keep Up-to-Date on New Equipment

Please check over the following list of interesting catalogs obtainable free of charge and either write direct to the manufacturers for their literature, or, if you prefer, put a circle around the identifying numbers below to indicate the catalogs you want, mail this coupon to The American City Magazine, 470 Fourth Ave., New York, and we will see that the catalogs are sent to you without expense or obligation on your part.

8-43

736 737 738 739 740 741 742 743 744 745
746 747 748 749 750 751 752 753 754
755 756 757 758 759 760 761 762 763 764
765 766 767 768 769 770 771 772

Name ..... Position .....

Address .....

Metallizer Unit

736. The Metallizing Company of America, 562 W. Washington Blvd., Chicago, Ill., has an interesting little pamphlet on their "Mogul" metallizing units. This describes in brief the workings and construction of these units for maintenance of metal parts.

Spun Centrifugal Pipe

737. Warren Foundry & Pipe Corp., 11 Broadway, New York, will furnish catalogs describing their spun centrifugal cast iron pipe which comes in sizes from 2 to 84 inches to meet your every need. You may also be interested in other Warren items such as special castings, bell and spigot, flange, flexible joint, culvert, high-pressure fire service pipe, and others.

Pump Design

738. Literature issued by the Joshua Hendy Iron Works, Pomona Pump Co. Division, 120 Broadway, New York—discussing the various design features of their pumps used for water supply, sewage treatment, fire protection, filter wash water, booster, and circulating—is available.

Water Main Cleaning

739. Literature may be obtained from the National Water Main Cleaning Co., 30 Church St., New York, covering this company's method of water main cleaning. They point out that it is a practical way to improve your water distribution system without drawing on a supply of critical materials.

Photocopy Machines

740. The American Photocopy Equipment Co., 2849 North Clark St., Chicago, will send you an interesting folder describing their versatile little photocopy machine. This labor-saving device will speedily reproduce copies of letters, forms, blueprints, drawings, photographs, and does not require a heavy investment in equipment that requires special skill.

Soil Stabilization

741. Seaman Motors, Milwaukee, Wis., have compiled a comprehensive booklet called, "Soil Stabilization Methods," which is a description of the many applications of the Seaman Pulvi-Mixer in this field. This catalog thoroughly covers the subject of stabilization in general—estimating binder soil, recommendation for mixture design, etc.; soil cement construction and the many problems it involves; bitumens; stabilization with calcium chloride; vinsol resin; highway and airport widening; and gives some useful hints for the city official.

Pipe Pusher

742. City officials will be interested in having from Giant Mfg. Co., Dept. P, Council Bluffs, Iowa, literature describing their pipe pusher. This tool eliminates the need for trenching by pushing pipe up to 15 inches in diameter through the ground, at the rate of from one to five feet per minute.

Fire Hydrants

743. R. D. Wood Co., 400 Chestnut St., Philadelphia, Pa., will furnish to city officials a special booklet explaining the Matthews hydrant. The main feature of this hydrant is its removable barrel—including all its working parts—which can be easily unscrewed and replaced.

Anthracite Filters

744. If you are interested in the use of anthracite as a filtering medium, write The Anthracite Equipment Corp., 101 Park Ave., New York, for their little booklet which deals with this subject in a thorough manner. You will find here a description of this product, for what purposes it may be used, the advantages, comparisons with other filtering mediums, and many other topics involved in its use.

Stopping Insect Damage and Rot

745. You will find the little booklet published by Cuprinol, Inc., 26 Spring Lane, Boston, Mass., entitled "How to Stop Mildew, Insect Damage and Rot," extremely interesting. This tells some of the history which led to the development of this effective material, describes the way it is used, and gives comparisons and details of its application.

Stationary Gas Engines

746. If you are studying power generating equipment you should have the new bulletin published by the Climax Engineering Co., Clinton, Iowa, describing the Climax stationary gas engines. These units—that have proved themselves over several years of operation in important municipal installations—operate continuously on natural gas, butane gas, manufactured gas, or sewage sludge gas. They can be operated over a wide range of speeds and are particularly well suited for direct connection to pumps, blowers, and other types of equipment where available capacities are required.

Shrubbery Sprayers for Municipal Use

747. City officials will be interested in securing a copy of "Men and Sprayers" from the Hardie Mfg. Co., Hudson, Mich. This comprehensive catalog tells you in complete detail how the Hardie sprayers are designed and built, how they are used for spraying of trees and shrubbery in parks and similar areas, and what advantages you derive from their construction. It also gives specification data on the many different models and sizes, and guides you in the selection of the proper machines for your needs.

Hydraulic Equipment

748. To meet wartime buying problems, Blackhawk Mfg. Co., Milwaukee, Wis., has issued a new Hydraulic Equipment Catalog, listing only those items scheduled for production. This catalog reveals that Blackhawk remains in production on hydraulic hand jacks from 3 to 50 tons capacity; 4-ton wheeled service jacks; numerous gauge-equipped jacks; 7, 10, 20, and 50-ton "Porto-Power" hydraulic units; and "Porto-Power" maintenance and motor vehicle assortments and pipe benders.

Resurfacing Concrete Floors

749. An interesting little bulletin has been issued by the Stonhard Co., 401 North Broad St., Philadelphia, Pa., entitled, "Over the Rough Spots," and gives information on how this company's product can be used to resurface concrete for quick and permanent results. Having a variety of uses, the manufacturer points to its successful application where rough wear is expected.

Electric Motors

750. Here is a little bulletin issued by General Electric Co., Schenectady, N. Y., that, although designed to meet war production problems, will be useful in many places for municipal work. It gives complete information on how to adopt your electric motors to different and various duties, and how to operate them on long and continuous service. When writing, ask for the "Motor Fitness Manual."

Temperature Control Equipment

751. The wide range of applications where temperature control is essential makes the new bulletin issued by Wheeler Instruments Co., Harrison and Peoria Sts., Chicago, Ill., extremely valuable. The booklet is essentially a condensed catalog providing a convenient listing of the principal items made by this company.

(Continued on page 21)

PRECISION

machined into the product

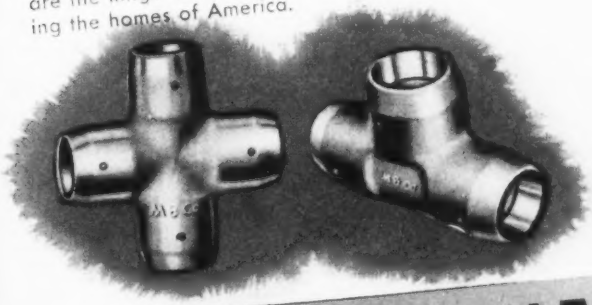
Precision is the keynote in the manufacture of STREAMLINE fittings beginning with the core, from furnace to mold and on through the machining operations.

Men of many years experience and "KNOW HOW" plus laboratory control through every phase of the work are a few of the many reasons for the consistently high quality and uniformity of STREAMLINE fittings.

Twenty-five years ago this factory was working entirely for Uncle Sam—in fact, our country's needs in the first World War was the very reason for our birth and existence. Today we are again working 100% to supply war materials for our armed forces—and during all the years between the first and second world war in which we were building a large domestic business, we also continued to supply ordnance material for Uncle Sam's Navy.

STREAMLINE fittings are now installed in victory ships, sub-chasers, submarines, mine sweepers . . . and the material used in their manufacture in peace time is also being utilized for a multitude of munitions parts. When peace is restored, all this expended brass and copper will be garnished for peace time use in those businesses of which we are now temporarily deprived.

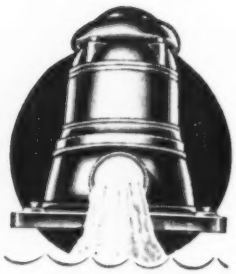
When copper and brass return from the war in countless millions of fragments to the scrap piles of the nation, you'll not find one rusted piece. Truly, these are the kings of metals, and—best of all, for plumbing the homes of America.



STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN

TIME IS EVER FLOWING FASTER

"The duration"—, which not so long ago seemed to be unpredictable, is now visualized over not so many tomorrows. Close upon the heels of Peace will come urgent new calls for greater industrial activity. The fields of expanding commerce will extend far beyond the Continental United States. American business men will send their wares to, and establish their plants in many foreign lands.



It will be an age of quality, efficiency and speed! It will be an age in which Layne, with more than sixty years of outstanding success will enjoy even greater achievements. Innovations, discoveries and improvements made by Layne for Military and Naval use will speed the installation of wells. Pumps of greater capacity and higher efficiency will be in production. New hydrological engineering developments will be made available for all manner of industrial, commercial and agricultural use. Layne will brilliantly maintain the position of world leadership in the well water development field.

Layne Pumps and Well Water Systems have long been miles ahead of competition. They are basically sound and proven in quality. They embody the most advanced engineering features. They are sturdy in construction, unequaled in efficiency and outstanding in reliability.

For fully illustrated literature, address LAYNE & BOWLER, INC. General Offices, Memphis 8, Tennessee.

LAYNE AFFILIATED COMPANIES

Layne-Arkansas Co., Stuttgart, Ark. • Layne-Atlantic Co., Norfolk, Va., Savannah, Ga., Orlando, Fla. • Layne-Central Co., Memphis, Tenn. • Layne-Northern Co., Mishawaka, Ind. • Layne-Louisiana Co., Lake Charles, La. • Louisiana Well Co., Monroe, La. • Layne-New York Co., New York City and Pittsburgh, Pa. • Layne-Northwest Co., Milwaukee, Wis. • Layne-Ohio Co., Columbus, Ohio • Layne-Texas Co., Houston and Dallas, Texas • Layne-Western Co., Kansas City, Mo., Chicago, Ill., and Omaha, Neb. • Layne-Western Co., of Minnesota, Minneapolis, Minn. • International Water Supply, Ltd., London, Ontario, Canada.

LAYNE

WELL WATER SYSTEMS
DEEP WELL PUMPS

BUILDERS OF WELL WATER SYSTEMS FOR EVERY INDUSTRIAL AND MUNICIPAL NEED

WHICH OF THE CATALOGS WOULD YOU LIKE?

(*Continued from page 18*)

Cast Iron Pipe

752. Pacific States Cast Iron Pipe Co., Provo, Utah will furnish you with a catalog on their McWane-Pacific precalked cast iron pipe that needs no lead melting or pouring and can be laid by unskilled labor. You may also obtain literature on this company's gate valves and fire hydrants.

Improved Incinerators

753. Every city official should know the way the Nichols Monohearth operates. Its resourceful design utilizes a revolving cone with stoking arms constructed in such a way that the mass of refuse is gently spread, allowing preheated air to mix with combustible material. The manufacturer points to a major increase in burning rate, reduction in manual labor, elimination of extra fuel and improved combustion. When writing Nichols Engineering & Research Corp., 60 Wall Tower, New York, ask for bulletin No. 212 entitled, "Monohearth, the Newest Incineration Development."

Pump Valves

754. A booklet issued by Birch Mfg. Co., 1523 Sedgwick St., Chicago, Ill., on the subject of their pump valves gives you information and illustration on the details of their construction and discusses the part these can play in the effective use of your pumps. These are made for hot and cold water services and will be found of use in a variety of different services.

Fire Hose

755. An informative little booklet on fire hose will be furnished by the Bi-Lateral Fire Hose Co., 20 N. Wacker Drive, Chicago, Ill., describing advantages and uses of this company's product. Bi-Lateral fire hose, by its resourceful design, will flatten easily, thereby making it easier to handle and carry on the apparatus bed of the truck.

Dustproofing Surfaces

756. City officials will be interested in catalog C51-543, issued by the Wyandotte Chemicals Corp., Michigan Alkali Division, Wyandotte, Mich. This useful little pamphlet gives a list of places where Wyandotte calcium chloride may be used, and contains a table showing the amount to be applied to different types of surfaces—among them packed gravel, new gravel, sand-clay, stone, tennis courts, and playgrounds; and also another table showing you how to figure what you need. You will also find valuable practical hints on the use of this dustproofing agent.

Film-Curing of Concrete

757. Booklet 5M-11-42, issued by the Johnson-March Corp., 52 Vanderbilt Ave., New York, gives you full details on Ritecure, their colorless film for curing concrete. This pamphlet gives results of tests made to prove maximum moisture retention, resistance to wear, and compressive strength; discusses in length the contents and workings of Ritecure; and lists some of the jobs where Ritecure was used.

Organic Chemicals for Water Treatment

758. Water-works officials interested in the process of using organic chemicals in water treatment will be anxious to secure a copy of "Organic Methods of Scale and Corrosion Control," issued by D. W. Haering & Co., Inc., 205 West Wacker Drive, Chicago. This interesting booklet, by means of charts, graphs, tables, and illustrations, discusses the use of organic chemicals in water conditioning. It also includes an explanation of causes of scale and corrosion.

Prints on White with Maroon Lines

759. Form AD204-30M, issued by the Ozalid Products Division, General Aniline & Film Corporation, Johnson City, N. Y., discusses their procedure of developing prints with maroon lines on a white background. This interesting little booklet discusses the actual steps involved in making these prints, lists its many advantages, and illustrates the machines.

Road Surface Maintenance Equipment

760. City officials in charge of roads, streets, and airport runways will be interested in the folder, "Road Maintenance and Construction Equipment," issued by Littleford Bros., Inc., 500 E. Pearl St., Cincinnati, Ohio. This deals with their Model No. 84-HD kettle, Model No. 155 Trail-O-Roller, and No. 101 Utility Spray Tank, and discusses the finer points of construction of these models, their usefulness to municipalities, and the various sizes in which they are available.

Priority Assistance

761. If you are having trouble with your priority problems here is a booklet that will come to your aid. Remington Rand has published a comprehensive catalog on priorities PD-408 or CMP 5-A that will assist you in clearing up any confusing details of the Materials Requirements Plan as applied to your unit. Address Gov't Methods Research Dept., Systems Division, Remington Rand, Inc., Buffalo 3, N. Y., for booklet SP-KD 3022.

(*Continued on page 22*)

THE CHEMICAL BASIS FOR IRON-CASE WATER METERS

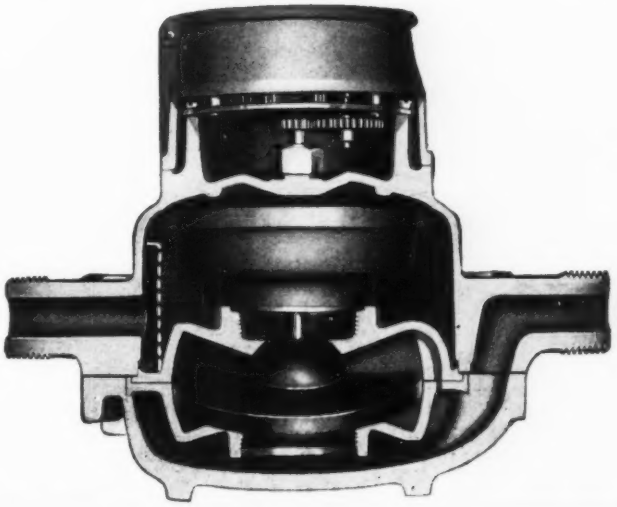
In water containing bicarbonate hardness, a water meter having cast iron casing with bronze works may give longer life than an all-bronze meter. This is partly because iron ranks ahead of copper in the electromotive force series of chemical elements, so deposits of mineral salts and corrosion are attracted harmlessly toward the iron. The bronze works are thus left relatively free from corrosion or scale for many extra years.

The reaction of such water also aids in preserving the hot-dip-galvanizing on the Niagara Meter iron casing. Niagara design does not permit bare iron to be exposed to the water.

When metering water that is relatively soft, or has low pH, iron case meters may need casings changed to bronze after the war. This can be done so simply that there is no need to postpone meter installations on this account.

BUFFALO METER COMPANY

2902 Main St. **Buffalo, N. Y.**

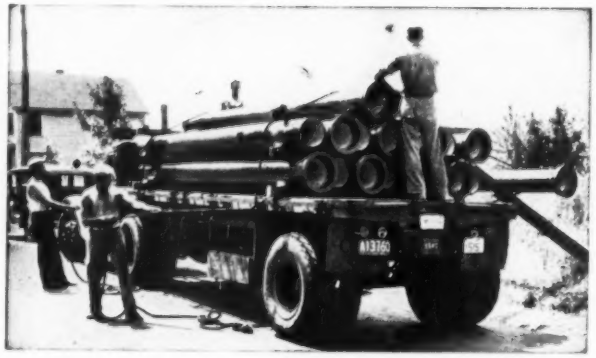


WARREN

4" to 16"

SPUN CENTRIFUGAL

CAST IRON PIPE



The above illustration shows the method of handling this superior pipe. ***Write now for our catalog describing*** **WARREN SPUN CENTRIFUGAL PIPE.**

Warren has cast iron pipe in sizes 2 in. to 84 in. to meet your every need; ***specializes in*** **THREADED CAST IRON PIPE for filtration systems, golf links, sprinkler systems, etc., sizes 1½ in. to 12 in.** ***and invites your inquiries.***

Also has the finest of special castings, bell and spigot, flange, flexible joint, culvert, milled and plain end tubes, cylinders, flanged and bell spigot fittings, high-pressure fire service pipe and WARREN Short Body Specials.

Write for catalogs.

WARREN FOUNDRY AND PIPE CORP.
11 Broadway, New York

WARREN PIPE CO. OF MASS., INC.
75 Federal St., Boston

WHICH OF THE CATALOGS WOULD YOU LIKE?

(*Continued from page* 21)

Water Waste Surveys

762. If you are troubled with waste in your water supply, you will be interested in receiving Bulletin No. 21 from The Pitometer Co., 52 Church St., New York. This gives the subject of water waste surveys complete coverage, giving you reasons for making a survey—including graphs showing the effect on total consumption and isolated districts—and discussess the technique of the process and benefits that may be derived.

Sluice Gates

763. Sluice Gates is the subject of Bulletin No. S-39, issued by The Ludlow Valve Mfg. Co., Inc., Troy, N. Y. You will find listed a complete list of sluice gates, with dimensions, types, and descriptions. The subject of floor stands and pertinent data concerning them is also covered in this literature.

Street Construction and Maintenance Equipment

764. Catalog No. 32-A, issued by the White Mfg. Co., Elkhart, Ind., will give you detailed information on their complete line of construction and maintenance equipment for roads and streets. You will find here data and specifications on traffic line markers, dryers, pavement repair trucks, asphalt plants, concrete vibrators and grinders, tar kettles, asphalt heating kettles, torches, concrete mixer heaters, and burners.

Sewage Shredders

765. If you are in charge of sewage-treatment plants, you will be interested in data you can receive from Gruendler Crusher and Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo., on their sewage shredders. This equipment will help do away with the troublesome problems of rags, garbage, and fibrous material choking up your system. Write this company for data.

Courses for Training City Officials

766. The International City Managers Association is ready to help you meet your problem of training new men to fill administrative jobs. Write The International City Managers' Association, 1313 East 60th St., Chicago, Ill., for their special circular discussing their correspondence courses covering 9 fields of public administration.

Emergency Vehicle Whistle

767. The Federal Electric Co., Inc., 8744 South State St., Chicago, Ill., will send you a bulletin on their Fury Exhaust Whistle for use on emergency vehicles. This literature will describe the many features of the construction of this whistle which help fit it to your needs. They also supply electric sirens to cities who do not prohibit the use of these on emergency vehicles.

Water and Sewer Pipe

768. To help you prepare plans and specifications for post-war waterworks improvements, city officials will be interested in securing from The Central Foundry Co., 386 Fourth Ave., New York, literature on their Universal cast iron pipe. This pipe is furnished in hot tar dipped, cement lined, and enameline lining, and the catalog issued by this company discusses its advantages for use in water mains and sewers.

Tune-Up for Gasoline Motors

769. Operators of Briggs & Stratton motors will be interested in securing from this company their booklet "4-Cycle Gasoline Motor Tune-Up Instructions." This pamphlet gives complete, detailed instructions for adjusting and repairing the various parts of these motors; lists reasons for making these motor check-ups; gives some general information and recommendations on 4-cycle motors, and tells how to order parts. Write Briggs & Stratton Corp. Milwaukee, Wis.

Auxiliary Fire Pumps

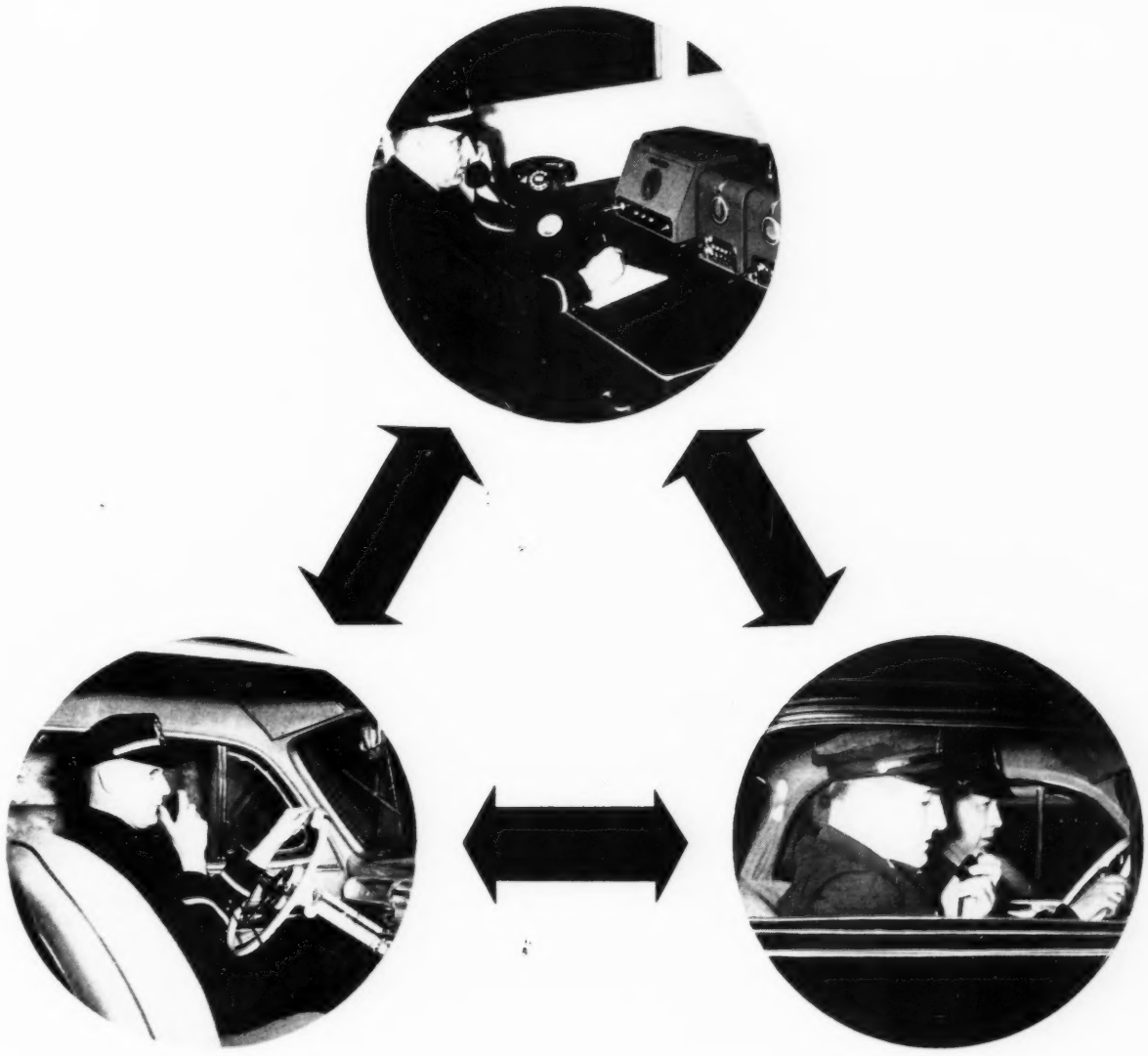
770. Well-equipped fire departments know the value of booster pumps to quickly handle fire alarms before the blaze has become out of control. These pumps may be front mounted and used together with a small tank. Operators report that arrangements such as this have been able to extinguish, unaided, over 80 per cent of the fires reported. To get further details on this type of pump write to the American-Marsh Pumps, Inc., Battle Creek, Mich.

Design Data for Concrete Reservoirs

771. The latest information on the design of concrete reservoirs is contained in the new bulletin issued by the Portland Cement Assoc., Dept. A4-4, 33 W. Grand Ave., Chicago, Ill., entitled "Circular Concrete Tanks Without Prestressing." Officials contemplating this type of reservoir in their post-war project should consider this bulletin among their required references.

Centrifugal Pumps

772. Gardner-Denver Co., Quincy, Ill., will send you literature on their horizontally split case, double suction centrifugal pumps. The horizontally split casing permits easy access to rotating elements without disturbing pipe connections.



Plan your post-war two-way FM Police-Radio system NOW!

Far-sighted town and city governments know that today is none too soon to study their post-war police-radio needs. General Electric believes that their analysis will demonstrate two outstanding facts:

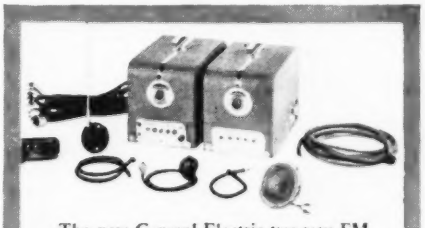
1. Frequency modulation offers by far the best method of police-radio communication for municipal police.
2. General Electric FM police radio is police radio at its best.

Years of G-E electronics experience, research, and engineering have achieved the highest standards of dependability, long range, and amazing freedom from static and interference for this equipment. Moreover, the suggestions of hundreds of police-radio operators all over the nation were incorporated: suggestions such as "Provide low battery drain," "Make it easy to install and service," "Give us a choice of accessories," "Keep initial and maintenance costs low," and "Make servicing simpler."

Tailored to police needs, this G-E FM equipment is available in all possible mobile combinations of 30 and 60 watts, and two-way fixed-station combinations of 60 and 250 watts.

Write for complete descriptive bulletins that also will guide you in budgeting and determining what equipment and accessories best serve your needs. *If vital war duties require it, you may order G-E FM police radio now. Electronics Department, General Electric, Bridgeport, Connecticut.*

Tune in General Electric's "THE WORLD TODAY" *and hear the news from the men who see it happen, every evening except Sunday, at 6:45 E.W.T. over CBS. On Sunday evening listen to "The Hour of Charm" at 10 E.W.T. over NBC.*



The new General Electric two-way FM mobile combination police radio, in 30 or 60 watts.

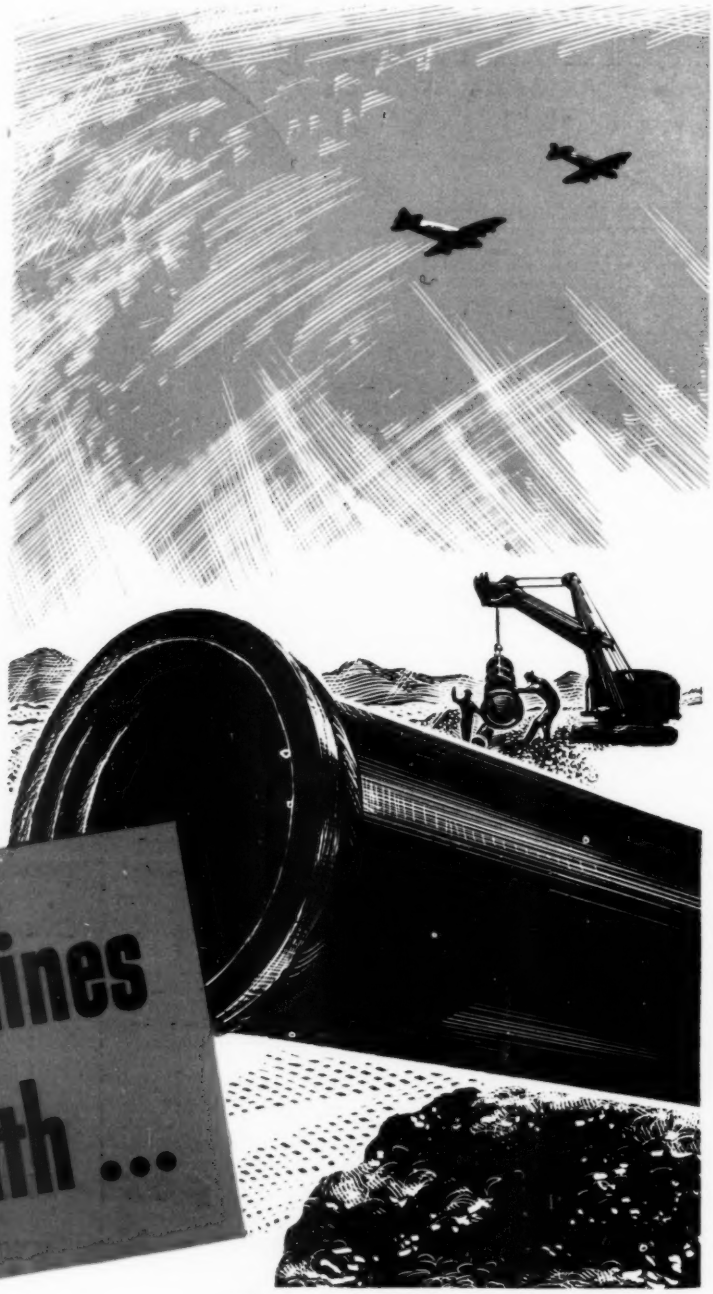
IT'S COMING . . . TWO-WAY FM RADIO IN EVERY POLICE CAR

NO OTHER MANUFACTURER OFFERS SO MUCH FM EXPERIENCE

GENERAL ELECTRIC

163-88-6918

FM POLICE RADIO • FM MILITARY RADIO • FM BROADCAST APPARATUS • FM RECEIVERS • FM BROADCASTING



THESE ARE THE GUNS OF PEACE:

Post-War Pipelines to Public Health ...

Public works such as parks and post offices, highways and bridges, may be desirable but *public works affecting the public health*—water works and sewage works construction—are clearly indispensable. Needed improvements and extensions, and even repairs, to these vital public services have been and are still being postponed. The same applies to utilities supplying gas for cooking, heating and other domestic purposes. Yet cast iron pipe, a standard material for water, gas and sewer mains, is available now with priorities, and will be available immediately and in large quantities after the war. For, while our members worked at full capacity in producing pipe for war projects, and are still producing a large amount of war material with special equipment, their pipe shops remain intact and will not require conversion when the war ends.

* * *

Really useful and important public works, such as water, gas and sewerage construction, sewage treatment plants and water purification plants, will create quick and widespread employment. Such construction should be

They shoot water through city streets to bathroom faucets—gas to kitchen ranges—influent to sewage treatment plants. Ample stocks in the pipe yards of our members are now available but only with proper priorities until the Guns of War are silenced.

resumed as soon as possible, and certainly without delay after the cessation of hostilities. Without delay means that *detailed plans must be ready* when the last gun is silenced.

* * *

Any of the members of this Association will furnish promptly information and advice in the preparation of specifications taking full advantage of the greater economy and efficiency of cast iron pipe made in accordance with the new A.S.A. Law of Design*—pipe scientifically designed for your specific service requirements.

**Send for booklet entitled "Manual For The Computation Of Strength And Thickness Of Cast Iron Pipe—Approved by American Standards Association" explaining the principles and methods which are the basis of the new A.S.A. Law of Design.*

CAST IRON PIPE
RESEARCH ASSOCIATION, CHICAGO
CAST IRON
NO. 1 TAX SAVER

SMITH
TAPPING MACHINES

★

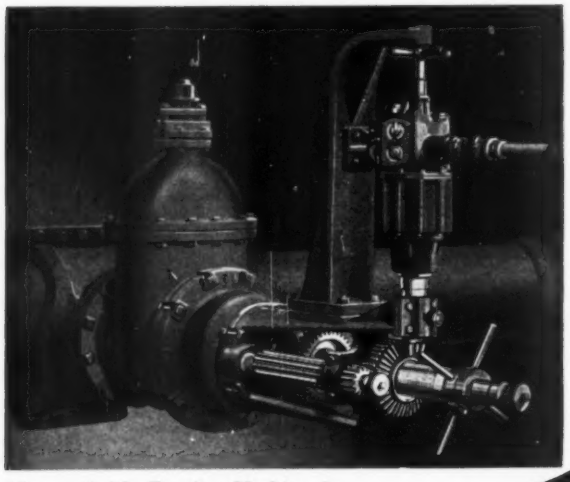
You Can Make a Branch Connection Without Stopping Service

If increased demands for water due to the National war effort make it necessary for you to plan new extensions to your existing pipe lines, you can make the necessary branch connection with a

SMITH TAPPING MACHINE

without interrupting the continuous flow of vital water to other points on the same line. These machines are made to make taps from 2 inches to 42 inches. They are easy to handle and economical to use, and are the most reliable machine for the purpose made.

The larger machines are for rent, and we supply supervision in their use. The smaller ones may be bought or rented.



Above: Smith Tapping Machine for making branch connection to water or gas main under pressure. These machines have been standard equipment throughout the United States since 1889.

★

OTHER SMITH PRODUCTS

Valves and Hydrants
Valve Inserting Machines
Tapping Sleeves
Tapping Valves
Hat Flanges
and Water Meters

Write for Catalog

Branches

7 So. Dearborn St., Chicago, Ill.
409 Texas St., El Paso, Texas
315 N. Crescent St., Flandreau, S. D.
901 Wm. Oliver Bldg., Atlanta, Ga.
428 13th St., Oakland 12, Calif.
524½ First Ave. S., Seattle, Wash.
1317 Oakley Street, Orlando, Fla.

THE A. P. SMITH MFG. CO. EAST ORANGE NEW JERSEY

25,000 TONS OF METAL
SAVED
on only 4 jobs!

On only four tailor-made large-diameter pipe jobs, more than 25,000 tons less iron were used than would have been necessary under other methods of design and manufacture of cast iron pipe. This saving resulted from specifying Mono-Cast Centrifugal Pipe in 16-ft. lengths, made in accordance with the A.S.A. Law of Design. In addition to this important saving in metal, 7,256 fewer joints were required with 16-ft. lengths, resulting in a large saving of labor and material. Three hundred fewer tons of joint materials were needed in making up the joints. Because of the high physical qualities of Mono-Cast Pipe, there was no sacrifice of strength or safety.

Such savings are important in both war and peace. When "plangineering" for peace time projects, or actually building for war time needs, specify Mono-Cast Pipe—strong, lasting, economical.

We will gladly assist you with your plans for any project, large or small, and whether scheduled in the immediate future or at war's end.

AMERICAN CAST IRON PIPE COMPANY
BIRMINGHAM 2, ALABAMA

Sales Offices in Principal Cities

SAVE 50% ON FUEL — HEAT AND MELT TAR AND ASPHALT TWICE AS FAST

WITH THE
AEROIL "HEET-MASTER" KETTLE

The "HEET-MASTER" will produce as much "hot stuff" as two ordinary type oil-burning kettles of the same capacity. Used by leading road and airport contractors. Send for FREE Bulletin No. 194AC. For Cut-Back and Emulsion Sprayers, Bulletin No. 190A. Oil-burning Lead and Pipe Compound Melting Furnaces, Bulletin No. 232AC. Portable Oil Burner & Torch Outfits, Bulletin 174A. Asphalt Paving Tools & Accessories, Bulletin 312A. Asphalt Paving Tool Heaters and Asphalt Pavement Heaters, Leaflet 171A.

Aeroil Burner Co., Inc., West New York, N. J.
CHICAGO SAN FRANCISCO DALLAS

HOTEL PHILADELPHIAN
FORMERLY HOTEL PENNSYLVANIA

DANIEL CRAWFORD, Jr., Manager
39th and CHESTNUT STREETS
PHILADELPHIA, PENNA.

Our courteous and competent staff will give you the utmost in friendliness, comfort and service. Conveniently located to all stations, and only five minutes away from the heart of the business section.

600 ROOMS each with bath from $2.50 up

Lounge and Restaurants. Unrestricted Parking to 3 a.m.

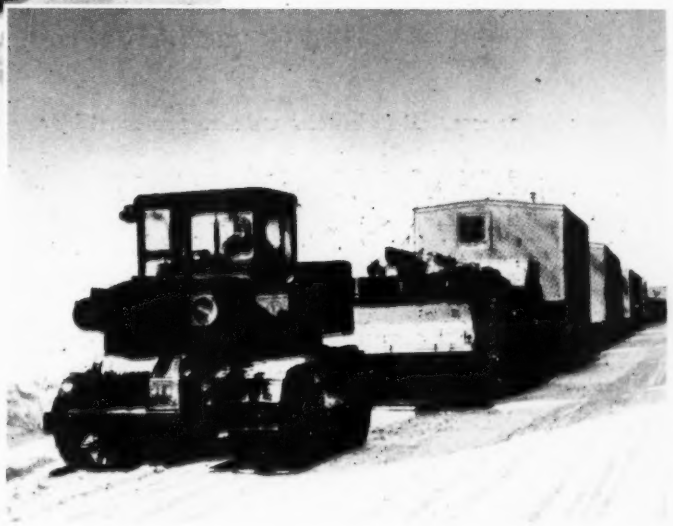
OIL .. from the Land of the Midnight Sun

The tractor-sleigh supply convoy followed the path shown above—from the railhead at Peace River, Alberta, to Norman Wells, N.W.T. — approximately 1,000 miles. The Canol oil pipeline extends from Fort Norman to Whitehorse, to connect with the Alcan Highway.

IN the frozen wilds near the Arctic Circle, a treasure of oil lay sleeping . . . serving man but little purpose. Construction of the Alaskan Highway lifeline brought it within easy piping and trucking distance of our armed outposts. But before the precious fluid could be started on its way, thousands of tons of supplies for drilling, pumping and transporting had to be hauled over mountain terrain through the bitter cold of an Arctic winter.

With the last railhead a thousand miles below . . . and roads non-existent or non-passable . . . moving the materials there was a job for tractors — tracklayers that travel where ordinary forms of mobile power cannot penetrate.

Working with contractors Bechtel-Price-Callahan, the U. S. Ordnance and the Corps of Engineers outfitted tractor-sleigh trains. Over a hundred Allis-Chalmers, 2-Cycle Diesel tractors took up the long trek northward. Days and nights on end they fought their way forward . . . in temperatures that reached 70 degrees below zero. Traveling in convoys of four trains each — a tractor to each train — they made a continuous parade over the snow-packed tractor trails — a parade without fanfare . . . grim, determined and successful! They and their brave band of operators delivered the goods!



118 ALLIS-CHALMERS, 2-CYCLE DIESEL TRACTORS, with their cargo-laden sleighs of oil rigs, pumps, pipe, tools and other oil field supplies, have written history in the snows of Canada's Northwest Territories. Additional A-C tractors also served . . . on various construction phases of the project.

• • •

In the days after the war, more trails will be broken . . . to new riches. Tractors will pioneer the way where man has never yet set foot. They will deliver the goods against all odds . . . play their part in releasing the abundance of materials we need to make this a better, happier life. New roads will open up a new world for all—new places to see, new friends to make, new products to enjoy.

ALLIS-CHALMERS

TRACTOR DIVISION, MILWAUKEE, WIS., U. S. A.

Because the W.P.B. reserved "PRESTONE" Anti-Freeze for municipal equipment*

YOU CAN PROTECT YOUR WAR-SCARCE EQUIPMENT THIS COMING WINTER!

"Boil-away" alcohol requires frequent check-ups of anti-freeze strength. "Prestone" anti-freeze contains no "boil-away" alcohol—*stays in your radiator*. Removes the risk of ruined equipment due to accidental freeze-up!

*other essential industries are also protected by the W.P.B. order.

WE URGE YOU TO GET YOUR SUPPLY NOW!

Wartime supplies of anything are uncertain at best. To be sure you're safe next winter, better get your "Prestone" anti-freeze now!

CAN'T EVAPORATE OR BOIL AWAY!

PROTECTS AGAINST RUST AND CORROSION!

ONE SHOT LASTS ALL WINTER!

YOU'RE SAFE AND YOU KNOW IT!

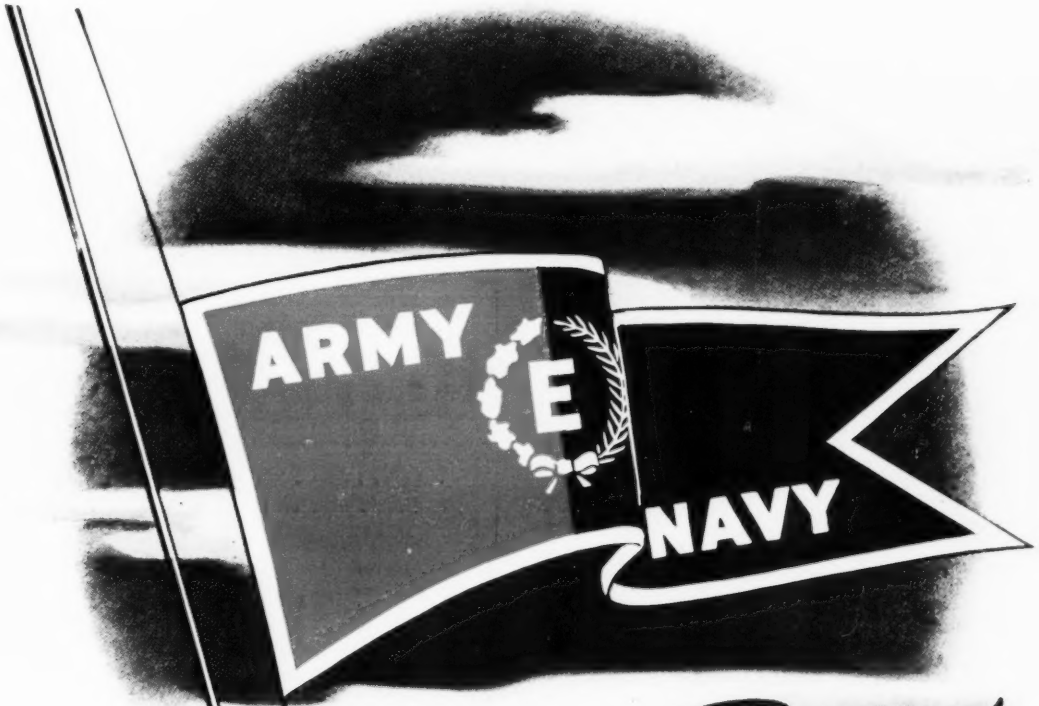
The words "Eveready" and "Prestone" are registered trade marks
of National Carbon Company, Inc.
Unit of Union Carbide and Carbon Corporation
UCC

SAME PRODUCT AS ALWAYS

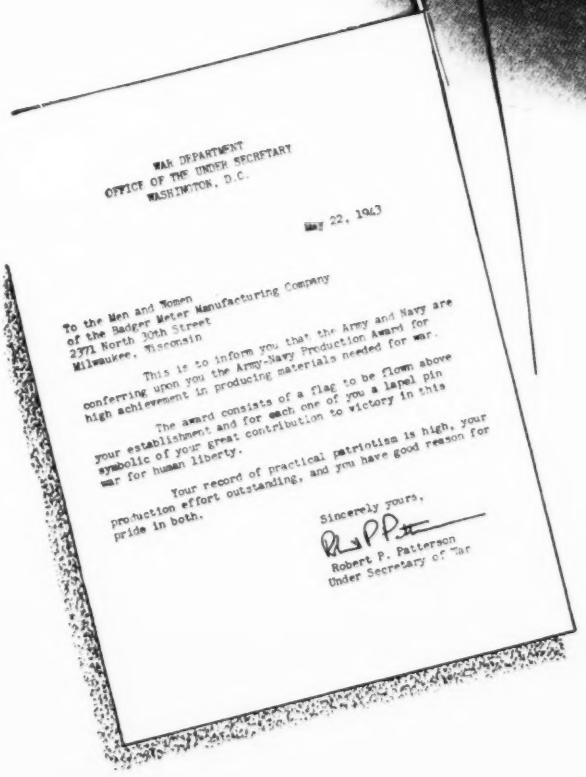
PRESTONE
TRADE-MARK
ANTI-FREEZE

SAME AS LAST YEAR
O.P.A. Retail Ceiling Price
$2.65 per gallon

BUY WAR BONDS AND STAMPS



THE *Reward* FOR OUTSTANDING ACHIEVEMENT



WAR DEPARTMENT
OFFICE OF THE UNDER SECRETARY
WASHINGTON, D.C.

May 22, 1943

To the Men and Women
of the Badger Meter Manufacturing Company
2371 North 30th Street
Milwaukee, Wisconsin

This is to inform you that the Army and Navy are conferring upon you the Army-Navy Production Award for high achievement in producing materials needed for war.

The award consists of a flag to be flown above your establishment and for each one of you a lapel pin symbolic of your great contribution to victory in this war for human liberty.

Your record of practical patriotism is high, your production effort outstanding, and you have good reason for pride in both.

Sincerely yours,

Robert P. Patterson
Under Secretary of War

Since the founding of the Badger Meter Manufacturing Company 38 years ago, our engineers and craftsmen have been working together to make the best and finest precision instruments. This priceless experience is now being directed to all-out war production. Eager to give all possible aid to the Nation's war effort, Badger men and women are exerting all their efforts to producing more and doing their work better and faster.

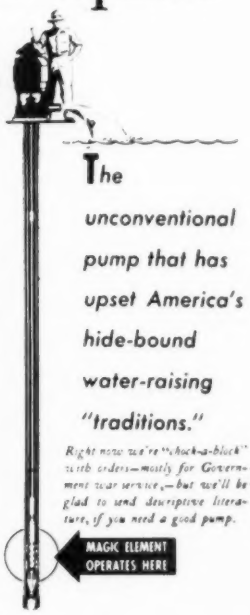
Since June 18th the Army-Navy "E" pennant has flown over the Badger plant. Badger workers wear the "E" lapel pin. In earning this most coveted award, Badger is also keeping faith with its 102 men and women now in the Armed Forces.

BADGER METER MANUFACTURING CO.
MILWAUKEE, WISCONSIN

BRANCH OFFICES: New York City • Tampa, Fla. • Seattle, Wash. • Savannah, Ga. Kansas City, Mo. • Marshalltown, Iowa • Waco, Texas • Los Angeles, Calif. Chicago, Ill. • Philadelphia, Pa.

"You can't squeeze water uphill"

...so PEERLESS did it!



The Peerless HI-LIFT shown utilizes single water lifting member consisting of hard chrome helical rotor revolving at half usual shaft speed within resilient cutless stator bearing. Hypocycloidal action literally squeezes water upward. 4" wells or larger. 500 to 3500 gals. per hour.

The unconventional pump that has upset America's hide-bound water-raising "traditions."

Right now we're "chuck-a-block" with orders—mostly for Government war service,—but we'll be glad to send descriptive literature, if you need a good pump.

MAGIC ELEMENT OPERATES HERE

PEERLESS HI-LIFT PUMP

Licensed under Moineau Patents U. S. 1892217 and 2028407

PEERLESS PUMP DIVISION OF FOOD MACHINERY CORPORATION
301 WEST AVENUE 26, LOS ANGELES 31, CALIFORNIA
SAN JOSE, FRESNO, CALIFORNIA • CANTON, OHIO

ON-THE-SPOT DEODORIZING

SPRINKLE Deodoroma Crystals wherever you need speedy, on-the-spot deodorizing. They come in rose, carnation, new mown hay, sandalwood and cedar aromas—choose the one you prefer. In handy cans or in bulk. Also available: Deodoroma Refills for Diffuseur, and Urinal Blocks.

DEODOROMA

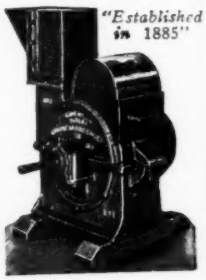
The C. B. DOLGE CO. Westport, Conn.

SANITARY ENGINEERS
Send for Facts on Our "NON-CLOG"
SEWAGE SHREDDERS

Gruendler Shredders Selected by U. S. Navy

The Ideal Unit for Municipal Sewerage Plants

GRUENDLER
GRUENDLER CRUSHER & PULVERIZER CO.
PLANT and MAIN OFFICE — 2915-17 N. MARKET • ST. LOUIS, MO.



"Established in 1885"

For the disintegration of Rag, Stock, Garbage, Floatables, and Fibrous Materials *without Choke Down* so as to pass Screen Bar—
Write for Facts

WARTIME TRAVELERS
RELAX
at Statler Hotels

IF it's *necessary* for you to travel, and if your trips take you to Statler cities, assure yourself of *comfort* and *relaxation* by staying at Statler Hotels.

At Statler Hotels, you get the three wartime necessities for travelers today: Comfortable rooms, delicious food, and restful relaxation.

There are Statlers in:

BOSTON • BUFFALO • CLEVELAND
DETROIT • ST. LOUIS
★
NEW YORK — Hotel Pennsylvania
PITTSBURGH — Hotel William Penn
WASHINGTON, D. C.

In industry after industry

Pomona Pumps are setting new performance standards!

Take this STEAM PLANT for example

IN the great new Harbor Steam Plant built by the City of Los Angeles, vast quantities of ocean water are needed for condenser cooling. The ocean water flows in to the 80 ft. long chamber shown at right from where it is pumped through the plant by Pomona Vertical Pumps, one of which you see projecting down into the reservoir. Initially, only two 24,000 g.p.m. pumps were installed, but eventually ten of these pumps will be used. This entailed a difficult engineering problem, for as new pumps are added, changes in flow, friction losses, etc., cause a considerable change in the static head.

It was found that with all pumps—*except Pomonas*—a costly change in pump bowls or motor speed would be necessary when all ten pumps are installed. *With Pomonas, only an inexpensive impeller change is required.*

In addition, because Pomonas are *vertical* pumps, they can be installed directly *over* the reservoir without need for costly dry pits and the resulting installation and maintenance problems. Extra valves and fittings are also eliminated and the *vertical* construction provides the flexibility necessary for ready conversion to changes in head conditions.

As a result, the Pomonas make important savings in installation costs—in operating costs—and in change-over costs . . . *a three-way saving!*

POMONA Vertical Turbine Pumps embody **so many** advanced features—features that save power, minimize maintenance, conserve space, and increase over-all operating efficiencies—that they are literally revolutionizing pump performance standards in industry after industry. They are staying on the job **longer** with less upkeep. They are delivering **more** water against **higher** heads at greatly reduced power costs. They are cutting floor space requirements as much as 60% over that required for other-type pumps. **And they are making many other vital savings!**

These are **facts** backed by user-reports from thousands of Pomona installations in widely-varying industries . . . facts you should investigate before **your** next pump purchase. Pomona engineers will gladly supply complete details on the savings you can expect from a Pomona installation on **your particular** pumping job!

CUT POWER COSTS

Pomona's semi-open impellers, easily adjustable at motor, vary the capacity of the pump according to requirement . . . and with proportionate savings in power. Eliminates wasteful throttling!

SAVE SPACE

Pomona's modern vertical design puts the pump at fluid level where it needs no priming . . . the motor at floor level where it occupies minimum space. Eliminates complicated priming equipment!

DELIVER MORE FLUID

90%—and higher—pump efficiencies are not uncommon due to Pomona's Bulbous Vane End shape which smooths fluid flow—minimizes friction—increases efficiency!

TROUBLE-FREE OPERATION

Because *all* bearings below the motor head are fully lubricated by the fluid being pumped there is no risk of contaminating product or equipment with oil film. No oil or grease tubes to maintain.

JOSHUA HENDY IRON WORKS

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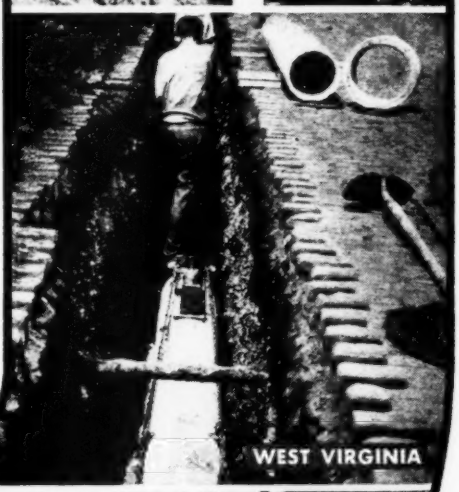

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Southwest Section, American Water Works Association, Oklahoma City, October 11-13.

California Section, American Water Works Association, Los Angeles, October 27-29.

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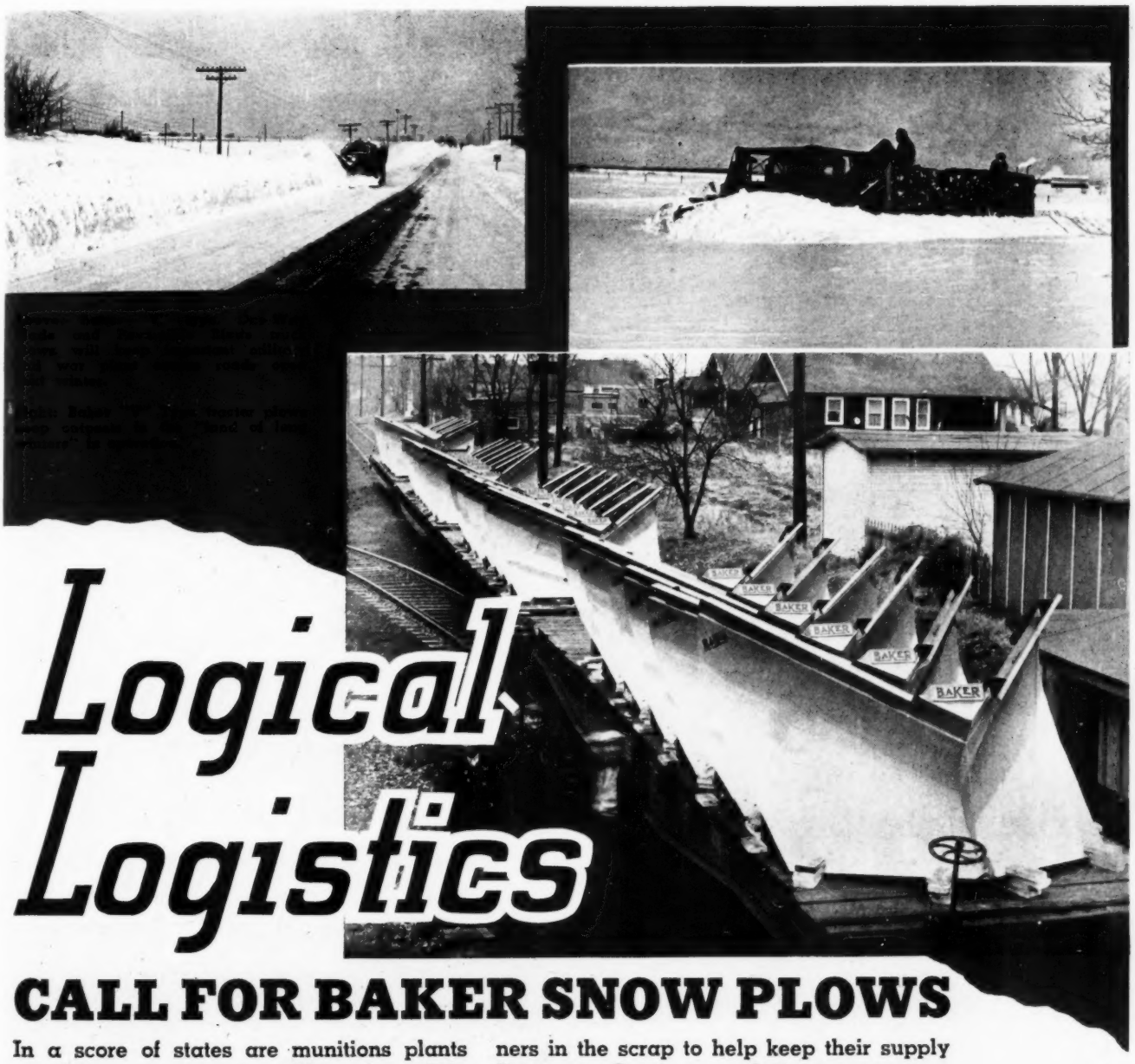

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We think of war as guns, shells, bombs and tanks, but *logistics*, the science of supplying fighting forces, must provide for the movement in and out of supply depots of munitions and ordnance material *every day*—winter or summer.

From the big Baker plant, snow plows have steadily gone out to vital points. Now, winter cannot stop the steady flow of supplies. Part of these plows have been sent to our partners in the scrap to help keep their supply lines open. Some are on duty at army camps and at bases in the far north.

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Send for a copy of "Snow—Friend of the Enemy."

THE BAKER MFG. CO.
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Awarded the Army-Navy "E" flag for proficiency in production.

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reduces street maintenance costs by heating tar and asphalt with SPEED AND SAFETY.

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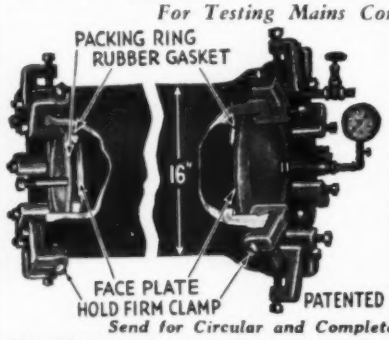
For Testing Mains Conveying



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The Most Reliable Name on Water Service Devices

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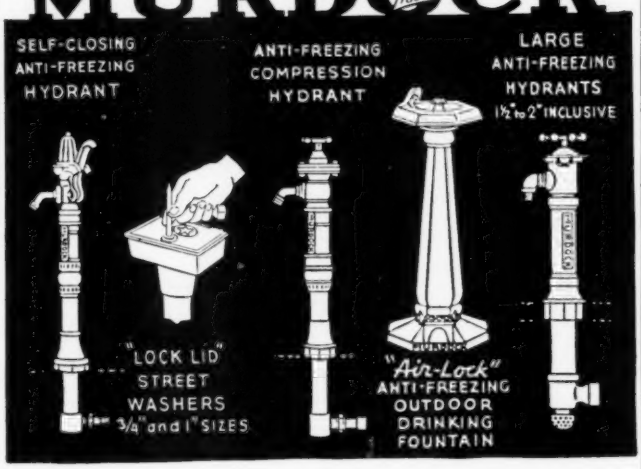
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YOUR COMMUNITY SHOULD KNOW THAT annually—

600,000 fires occur,
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WAR EFFORT WAS IMPEDED

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THE FIRE ALARM BOX—

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Worthington-Gamon manufacturing facilities are augmented by a thoroughly equipped Research Laboratory manned by technically trained water works engineers.

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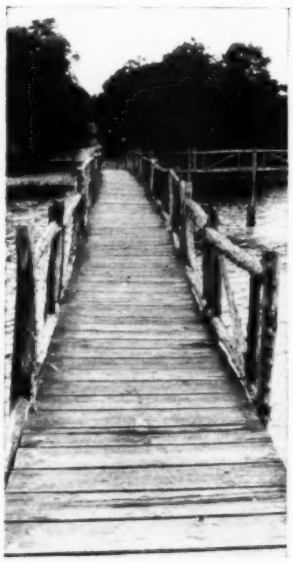
We Can't Afford This Rot



Here's a park bridge with rails loose, boards rotting and sagging

CUPRINOL
Stops Rot!

Replacements are too costly, labor and material too scarce today, to let woodwork rot. Treat wood with Cuprinol by brush, spray or dipping, and you eliminate the nourishment on which wood rot and insect borers feed. You can't afford rot—but you can afford Cuprinol.

Send for descriptive booklet

CUPRINOL, Inc., 26 Spring Lane, Boston 9, Mass.

PROTECT YOUR EQUIPMENT WITH THE FEDERAL FURY EXHAUST WHISTLE

The Fury is easy to install — fits any vehicle

The simplest and the most effective way to protect your equipment, as well as the property of others, is to install the unmistakable warning signal—the FEDERAL Fury Exhaust Whistle.

Its tone, clear, powerful, and penetrating, clears the way for blocks ahead

Easy to install—simple to operate—sturdily built, the Fury will give many years of service.

For communities which do not prohibit the use of sirens; FEDERAL offers a wide variety of electric sirens.

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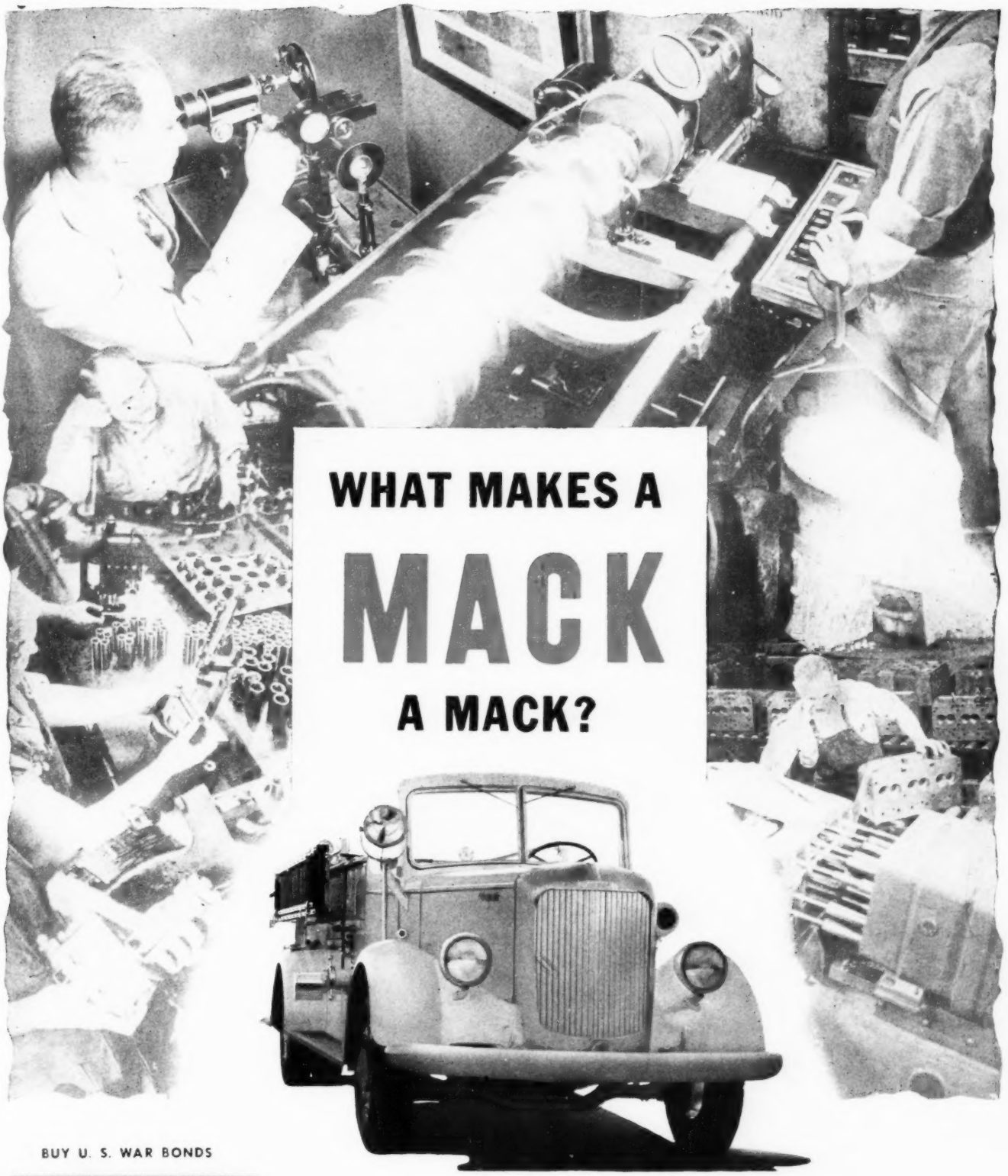

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It's the hands and skills of thousands of workers trained to work to the highest standards and closest tolerances in the industry.

It's the experience of more than 42 years of designing, building and controlling the quality of Mack apparatus through every stage of manufacture from raw materials to finished product.

It's the more than 70 direct factory branches that provide service and parts nearby the communities where Macks are on the job.

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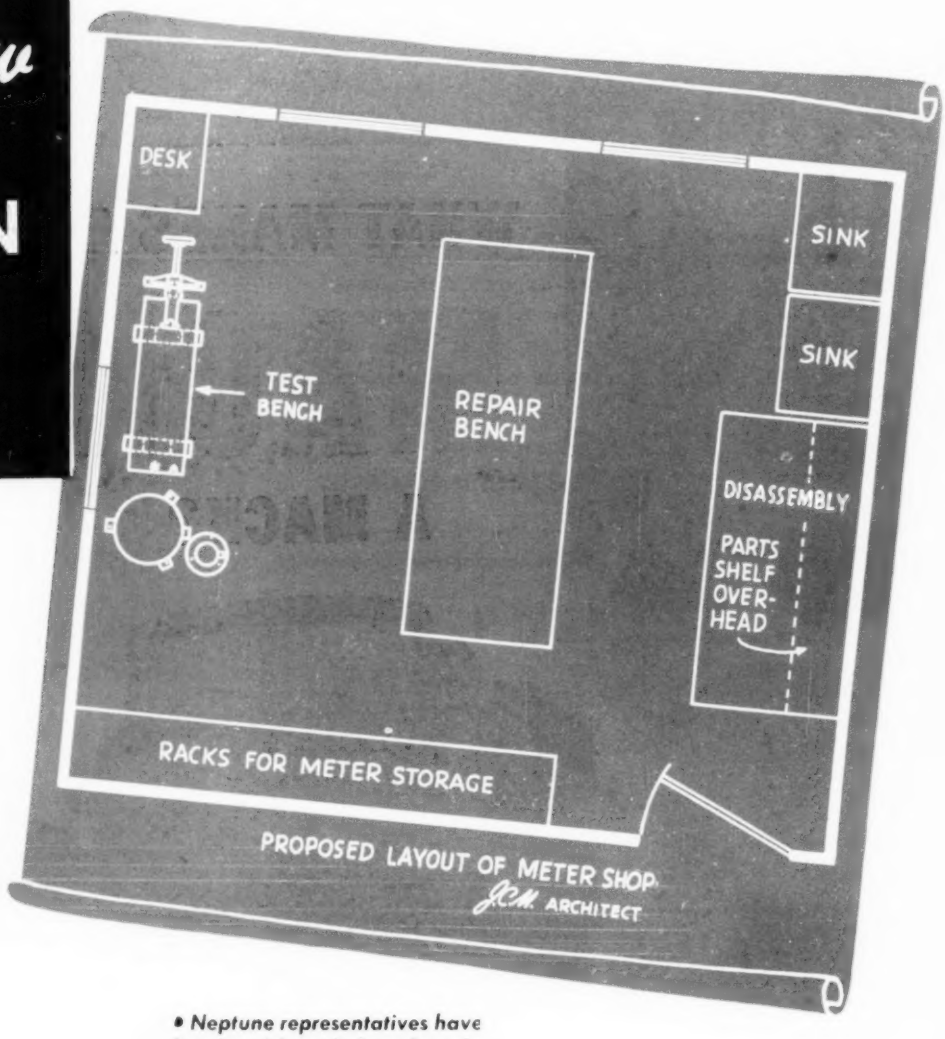
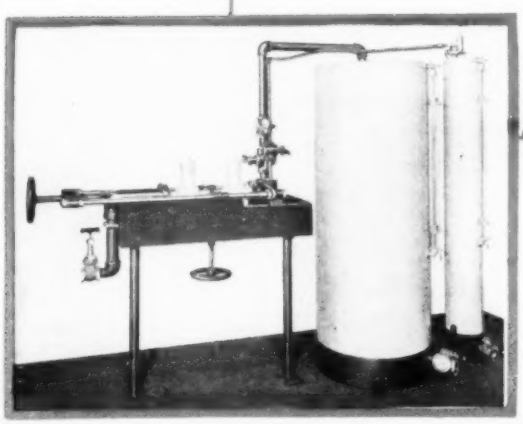
A GOOD meter repair man will do better work when he has good tools and a well planned place in which to work.

That is why your post-war planning should include your meter shop. It is not too early to look into the modernization of testing equipment. The layout of the shop is also important. The proper arrangement of the necessary work benches, parts-bins, testing bench, etc. will enable the meter man to do a better job. An efficient meter shop need not be elaborate nor expensive . . . but remember that it is the heart of the metering end of your water system; and it will pay you to plan it carefully.

Plan Now for a MODERN METER SHOP





• Neptune representatives have first-hand knowledge of methods used in water departments of all sizes and will be glad to help with your plans.

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Neptune Meters, Ltd., Long Branch, Ont., Canada

The Post-War City—Tractor or Trailer?

AS the victory of the United Nations comes definitely nearer, a question of vital significance to the future of local government looms definitely larger:

Shall American municipalities pull their full share of the reconstruction load, or shall they leave it almost all to Uncle Sam? Shall the city, in short, be a tractor or a trailer in the building of our post-war civilization?

When Armistice Day came in World War I, so little planning had been done for post-war public works that the Editor of THE AMERICAN CITY sent to President Wilson the telegram here reproduced from the December 1918 issue of this magazine. The reply of Bernard M. Baruch and the excerpt from the President's subsequent message to Congress are of present significance.

Today the post-war preparedness picture is, in some respects, quite different from that of a quarter-century ago. Large expenditures by the Federal Government will, of course, be essential for an orderly readjustment from wartime production to post-war prosperity. The cities, also, are giving more thought to their obligations and opportunities than they did during the previous World War. As shown by the survey which THE AMERICAN CITY has been conducting for several months past, municipalities in all parts of the United States are planning ahead for post-war construction projects.

But adequate attention has not yet been given in most cities to the vital problem of where the money shall come from.

Some cities are wisely setting up reserves,* in war bonds or otherwise, for post-war projects. Others are reducing their bonded indebtedness, thus providing borrowing capacity for the years ahead. But others are hopefully looking to state or Federal loans or grants for their post-war public works financing.

It may be that large loans for urban redevelopment will be forthcoming from enactment of some such measure as the Thomas Bill (S. 953) or the Wagner Bill (S. 1163) now before Congress.† But in addition to studying the possibility of using such aid, municipalities would be well advised, we believe, to show a self-reliant attitude towards their post-war capital budgeting. It would be a sorry spectacle indeed if the depression-born timidity of a decade ago were to revive with the winning of the war, and municipal officials were to look chiefly to Washington for their post-war salvation.

The city is still, and must continue to be, a bulwark of democracy—and a tractor rather than a trailer in civilization's forward march.

*Specific authorization for the building up of cash reserve funds by municipalities for public works construction after the war is now to be found on the statute books of sixteen states—Arizona, California, Connecticut, Kentucky, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, North Dakota, Oregon, Pennsylvania, Rhode Island, and Washington. Municipalities in some of the other states may have such a right without enabling legislation.

† See THE AMERICAN CITY, May 1943, page 71; and July 1943, page 38.

VOLUME XIX
NUMBER 6

The American City

NEW YORK
DECEMBER,
1918

Municipal Improvements an Important Factor in American Reconstruction

Copy of a Telegram to President Wilson

May I suggest that a message from you thru the newspapers or otherwise to governors, mayors and civic organizations urging immediate preparation of plans for needed public works would aid very greatly in stabilizing employment and readjusting industry to a peace-time basis? Such projects might include road construction, street paving, schools, sanatoria and other public buildings and institutions, bridges, parks, playgrounds, housing developments, reconstruction of slum areas, protection against fire and flood and improvement of public utilities, water supplies, sewer systems, development of water power and freeing streams and lakes from pollution. Many of these projects will require time for preparing plans and voting funds. Contracts can then be let and work started as men and materials become available. Such a program will be of the utmost value during the coming months of readjustment. It will lighten the burdens of the Federal Government and will provide for the states and cities assets of permanent value to all the people.

HAROLD S. BUTTENHEIM
New York, November 15, 1918 Editor, THE AMERICAN CITY

Approval by the Chairman of the War Industries Board

I acknowledge receipt of your kind letter of November 15, enclosing copy of your telegram to the President, urging immediate preparation of plans for needed public works. I agree with you that there is an unusual opportunity at this time to proceed with the doing of all work of this character which has been held in suspense during the period of the war, and that the working out of such a program will be of great value during the coming months of readjustment.

B. M. BARUCH
Washington, November 19, 1918 Chairman, War Industries Board

From President Wilson's Annual Message to Congress

The ordinary and normal processes of private initiative will not provide immediate employment for all of the men of our returning armies. * * * It seems to me important, therefore, that the development of public works of every sort should be promptly resumed, in order that opportunities should be created for unskilled labor in particular and that plans should be made for such developments of our unused lands and our natural resources as we have hitherto lacked stimulation to undertake.

Washington, December 2, 1918 WOODROW WILSON

Streamlined Sanitation

Bloomfield, N. J., Supplants Inadequate Contract Refuse Collection Facilities with a Modern, Well Engineered Municipal System Despite Wartime Handicaps

By WALTER B. SCHOLLA
Consulting Engineer
Montclair, N. J.

ON May 17, the town of Bloomfield, N. J., opened a home front blitz on the refuse situation by beginning operation of its streamlined municipal sanitation service.

Bloomfield's move from contract to municipally operated collection resulted from two general causes. First, a neighboring municipality five years ago changed from contract to municipal service and saved more than $120,000 (*New York Times* 2/25/43). Second, during the winter of 1942-43 the manpower situation became progressively worse throughout New Jersey, and refuse workmen were hard to obtain. Contract collections were running into trouble throughout the whole region. In various neighboring communities during the winter councilmen were holding up contractors' checks for failure to perform (*Newark News* 1/18/43); store owners were being asked to dispose of commercial waste formerly picked up for them (*Newark News* 2/2/43); mayors were discussing joint collections by several municipalities similar to joint sewer enterprises. Residents were writing to their editors: "For a week, over Christmas, a dead cat in a horrible mess decorated the road in front of our house with avid dogs and children in attendance" (*Newark News* 1/16/43); and refuse contracts were subject to approval of OPA. City officials were saying, "You can't pick garbage contractors out of the sky" (*Newark News* 2/2/43).

Contracts for refuse collection services were running as high as three hundred per cent over previous costs.

With this effervescing background playing a hand in both the health and economic structure of the town, Bloomfield officials, with William H. Kirsch as Chairman of the Salvage Committee, decided to act. After first balancing estimated operation costs against figures presented by contract, they retained the writer to design and set into operation a municipal garbage collection system.

Engineering Features

The design and operation of a refuse collection system is an engineering task throughout. It requires the most careful kind of study, since one cannot cushion his figures with fat factors of safety as one can do in other types of engineering.

Daily, monthly and annual refuse production rates are essential, but difficult to estimate. Production must be measured in terms of volume, weight, and weight per unit volume; and adequate capacity must be calculated for the maximum, rather than the average anticipated loads for any day, week, or month.

Many other important factors affect the design. Length of haul to disposal must be considered, and this length is important both in terms of minutes and miles. Loading rates—cubic yards and pounds per man hour—influence the design, the cost, the manpower required for the system. Wage rates, supervision requirements, and salary rates directly affect the cost.

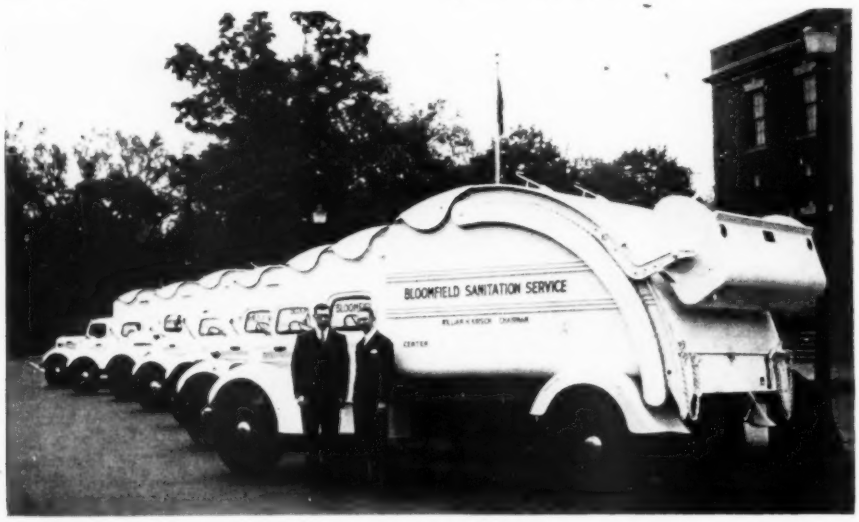
Refuse Production Estimates

We estimated Bloomfield's refuse production at 102,500 cubic yards per year; with maximum monthly production in January at 11,500 cubic yards and minimum monthly production in July, August, and September at 7,000 cubic yards per month. Summertime Bloomfield refuse will weigh about 425 pounds per cubic yard when compressed in a compactor type truck; winter ashes may raise this average unit weight to 575 pounds per cubic yard produced.

The Bloomfield monthly peak load will occur in January. Daily peaks will occur in January on Monday, Tuesday, and Wednesday, when production may average 42 per cent more than on Thursday, Friday, and Saturday. This spread is probably due to greater refuse-producing activity during the week-end; the resulting production is collected on each district's first collection day. We estimate the normal maximum Bloomfield peak production at 490 cubic yards per day.

Performance

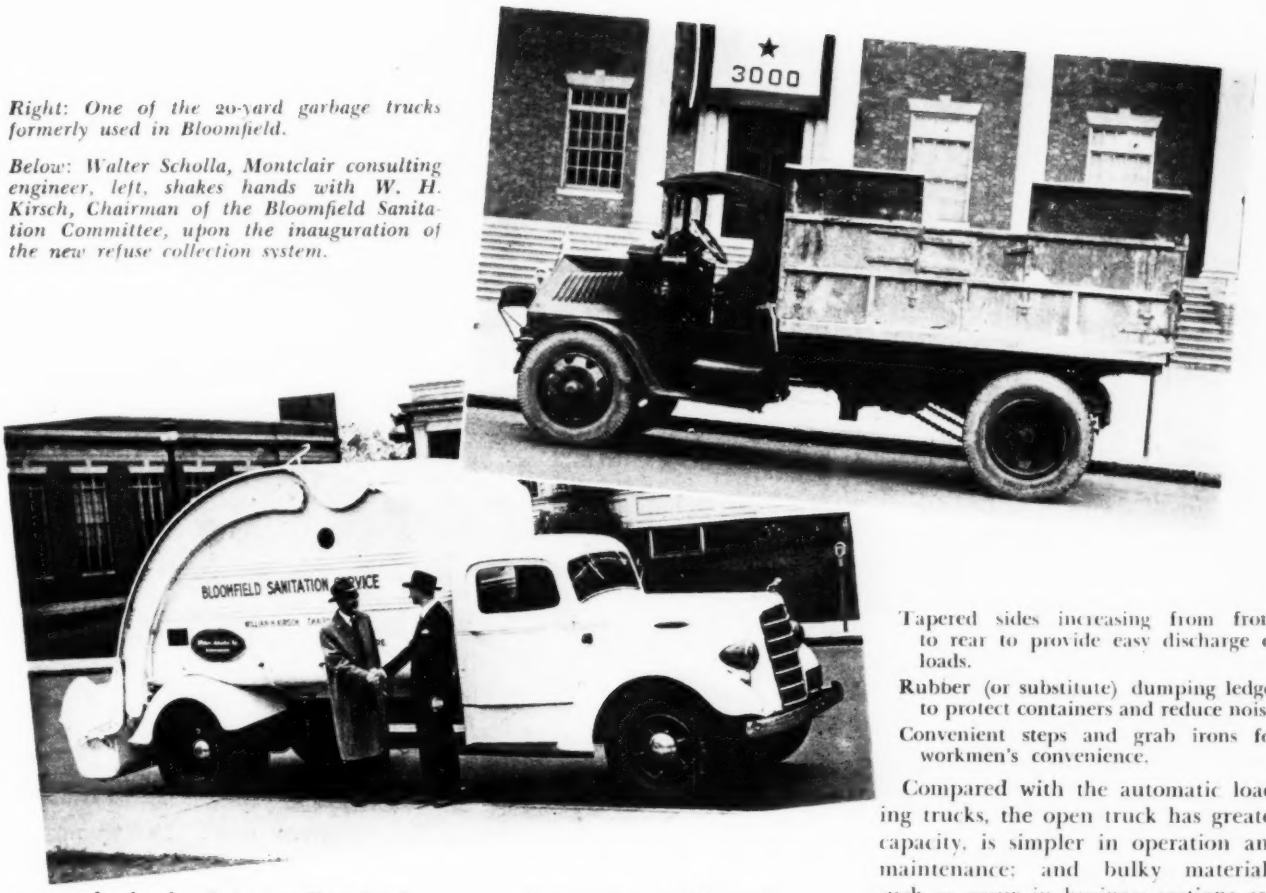
Most important performance rates in a curb-service, dump-disposal collection system are loading rates in cubic yards per man hour, and dump-haul rates in cubic yards per equipment hour; and per man hour. Bloomfield's dump is a land-fill project on the Jer-



Councilman William H. Kirsch, Chairman of the Sanitation Committee, and Charles Demarest, Supt. of Service stand in front of the 7 Elgin Refuse-Getter Chiefs used for the refuse collection work.

Right: One of the 20-yard garbage trucks formerly used in Bloomfield.

Below: Walter Scholla, Montclair consulting engineer, left, shakes hands with W. H. Kirsch, Chairman of the Bloomfield Sanitation Committee, upon the inauguration of the new refuse collection system.



sey meadowlands. It is a medium haul, 4.9 miles from Bloomfield's center of loading.

Our calculations showed that the automatic, skip-loading trucks would outproduce the open-body, manually operated truck by approximately 25 per cent. The automatic truck will produce 5.5 cubic yards per man hour during the winter months in comparison with 4.0 for the open body truck. The summer rate comparison is 4.5 cubic yards per man hour for the automatic body truck against 3.5 for the open body. Carrying this calculation still further, it may be shown that seven trucks each with 13 cubic yards capacity should take care of the peak loads.

12 Closed Trucks, One Open

To allow for a margin of overload, seven automatic 13-yard Elgin Refuse-Getter Chiefs, giving capacity called for in the design, were augmented by one 20-yard open body truck. Specifications for chassis and motor for the automatic trucks required their being adequate to draw 7,000 pounds body weight and 8,000 maximum pay load up the maximum grade encountered (7 per cent for 2,000 feet) at 15 miles per hour. With these demands in view, the automatic bodies were mounted on Mack chassis, with 306 cubic inch motor displacement. The open body designed for a pay load of 12,000 pounds is mounted on a BX Mack truck.

Automatic vs. Manual

The question of automatic bodies vs. open manually loaded bodies was carefully weighed before the decision was made to purchase the automatic units. Compared with the open units the automatic units have the following advantages:

They will require one less man per truck crew to operate. This is particularly important during the period of critical manpower shortage, as workers may be released to other essential activities.

Because of the low loading height, men physically unable to load open trucks can load automatic bodies with ease. The low loading height means a low hernia rate. (Hernia has been a particularly serious problem with refuse loaders.)

Since the automatic bodies require no "top man," illness caused by refuse fumes and injuries caused by overhanging branches striking the top man are eliminated.

The low lift reduces damage to refuse containers, now difficult to obtain.

The automatic enclosed bodies are clean, sanitary and prevent papers and refuse from flying.

Automatic-loading bodies provide insurance against break-down of the system due to the manpower shortage.

Design features of the 20 cubic yard open body include:

Ample ground clearance of 15 inches when in full dumping position of 50°.

Relatively low loading height to loading doors with maximum height of sides no greater than 9 feet.

Tapered sides increasing from front to rear to provide easy discharge of loads.

Rubber (or substitute) dumping ledges to protect containers and reduce noise.

Convenient steps and grab irons for workmen's convenience.

Compared with the automatic loading trucks, the open truck has greater capacity, is simpler in operation and maintenance; and bulky materials, such as occur in business sections can be more easily and quickly loaded.

Truck Flexibility

Plans for Bloomfield's refuse collection system called for the use of equipment on other municipal activities. Trucks were purchased rugged enough in design for snow plowing. The type of automatic body purchased is excellently adapted for picking up dumps from machine street sweepers, and also for loading snow from crosswalks.

The refuse collection personnel problem is particularly difficult in wartime; but we searched for men of desirable qualifications and aptitudes to be employed for each particular part of the work. To secure a capable superintendent, able and conscientious truck driver and refuse handlers, all vital to the task, was a difficult problem. They were selected for qualifications conforming as closely as possible to the specifications prepared by the engineer. For truck drivers, these include 6th grade education, license to operate a motor truck, and a good record. The man must be robust, not addicted to alcohol or subject to heart ailments that might interfere with the safe operation of his vehicle. Handlers must be sound physically and should not weigh less than 150 pounds.

The sanitation service employees will be uniformed with matched cap, shirt,

jacket, and pants. They will be outfitted for stormy weather with rain hat and jacket and with boots or rubber overalls, if these can be obtained. Sick leave and vacations with pay will tend to reduce turnover rates and absenteeism.

Cost and Production Accounting

Cost and production statistics furnish the scientific refuse collection manager with his most important administrative tools. The cost and production system for the Bloomfield refuse collection is designed for simple, efficient control of operation. The original reporting forms are the drivers' and handlers' daily reports. These are the source documents for the monthly administrative reports of cost and production, in terms of men and equipment. In turn the monthly reports are summarized to form annual operating reports so as to provide necessary statistics for the annual budget report. Overhead clearing account forms are provided for computing important, though sometimes neglected, indirect costs of the operation.

How the System Works

Bloomfield's new system operates under a two-per-week collection plan. Mixed refuse including garbage, ashes and rubbish are placed on the curb by householders or merchants, who also return the empty containers. Use of containers larger than 30 U. S. gallons is discouraged. We have recommended metal containers for garbage and ashes; rubbish containers can be barrels, wood baskets, boxes or burlap or canvas bags. Dead animals are picked up immediately upon call.

The sanitation service does collect leaves, lawn cuttings, hedge clippings, but suggests that these be used effectively and economically for compost piles. The service does not collect tree branches, water boilers, stones and rocks, piping, plaster, or similar accumulations.

The sanitation service has its office in the Town Maintenance Building, where a business-like follow-up system responds to customer complaints.

The Mystery of the Lost Water Supply

Or What You May Have to Do If You Don't Have Enough Valves, Master Meters or Recording Equipment

IF YOU want to know what can happen when your water department is not fully instrumented and you need some good reasons for having accurate meters and maps, drop a line to M. M. Griner, Superintendent of Water Works at Tekoa, Washington. He will tell you how one day last January his water supply disappeared and apparently could not be resurrected. E. C. Jensen, District Engineer for the Washington State Department of Health, knows what happened because he was on hand and helped Mr. Griner unravel this mystery.

Tekoa is a town of about 1,500 and lies on two sidehills separated by a small creek. The water supply comes from two drilled wells, located adjacent to the creek, and is pumped directly into the distribution system. There is a reservoir located on the sidehill high enough to serve in place of an overhead tower. Only one 10-inch line crosses the creek. This line apparently was just laid on the creek bottom. It had a minimum of support and was valved only at one side.

Noticed Pressure Drop

On the morning of January 4, Mr. Griner noticed that things did not look altogether satisfactory. A gage on the pump discharge indicated that the water system pressure was less than normal. He immediately checked all known weak points in the system for breaks and attempted to inspect the main crossing the creek, but could not examine it closely because of high, turbid water. Having found nothing wrong he decided that the pressure gage was in error. However, by noon when he started for lunch, he began to receive calls from consumers all over the town, stating that they had no water.

Thought Wells Were Dry

Mr. Griner first looked at his pumps. One well was equipped with an airline for measuring draw-down, and a hurried check indicated that the water level had dropped so low that the pumps were apparently breaking suction. Consequently, he concluded that the wells had gone dry and shut the pumps down, announcing his plight to the water users. Near panic resulted.

Emergency Consultation

The State Board of Health engineers and the town's consulting engineer, W. L. Malony, were called into an emergency session. In order to furnish temporary service they arranged for an auxiliary supply by connecting to a railroad well. The railroad company recognized the apparent disaster in the town's supply and willingly cooperated.

As if to further aggravate the harried Mr. Griner and his helpers, the water level in the wells mysteriously returned to normal after the pumps had been shut down. However after starting the pumps, the level promptly drew back down and broke suction. This gave them a clue on the way to

How the creek crossing looks now. This line connected with Dresser mechanical couplings now spans the stream by means of a small suspension bridge. Previously it was an underwater crossing not thoroughly protected, and valved only on one side.

trace the trouble. By throttling valves on the pump discharge, which in turn provided pressure against the pump, they were able to restore the normal operating water level in the wells. Under such operation they knew that they were getting some water, but could not learn how much.

One thing was evident: something had happened to permit the drop in pressure against the pumps and the excessive draw-down observed earlier in the day. A logical assumption was a break in the main somewhere in the low area near the pumps.

Break Located

After re-examining the system they located this break in the creek crossing; but the fact that there were no valves on each side of the creek, so that the break could be isolated, immediately introduced another problem. Several valves, all with uncertain and vague location records, had to be spotted and closed to complete the isolation of the break. Finally an emergency crossing was laid using a 2½-inch fire hose. Permanent repairs are now in place using an overhead pipe suspended by cable.

If there had been master meters on this Worthington deep well pump the story at Teko might have been different. The gage indicated clearly enough that something was wrong.

There are three lessons we can learn from the city of Tekoa's experience, says Mr. Jensen. The first is that airlines should be provided on all deep wells for checking water level measurements, and an accurate and continuous record kept of all water levels at all times. Had there been an airline on both wells the excessive draw-down would have been noted early in the day.

Master Meters, Valves

Next, master meters should be provided on all supplies, whether they are pumped from a well, or lake, or a gravity supply from a stream or spring. Had there been master meters on the pump discharges it would have been easy to detect the excessive pumping rate that was taking place due to the reduced head.

Finally, all valves should be accurately located with respect to fixed points such as hydrants, curbs, or telephone poles. Charts, maps, or records should be prepared listing these locations. Also, valve boxes should always be provided and brought up to street grade whenever street improvements are contemplated.

Water Supply Interconnections and Cross-Connections

Question: When is an interconnection not an interconnection?

Answer: When it is a cross-connection.

WATER-WORKS men in New Jersey had this point cleared up emphatically by Robert S. Shaw, Assistant Sanitary Engineer for the New Jersey State Department of Health, on April 9 at a meeting of the New Jersey Section of the American Water Works Association. He explained that an interconnection is a connection with two or more water supplies joined for the purpose of furnishing water from one system to any other. An interconnection, he emphasized, involves the use of no unapproved water supply.

In contrast a cross-connection is any device which permits, or might permit, the flow of water from an unapproved supply into a public potable water system.

Legal Status

An "unapproved supply" is one which has not been approved for public distribution by the State Department of Health. The quality of an unapproved water supply, Mr. Shaw emphasized, is of no concern and it receives no consideration in the administration of New Jersey's new cross-connection law which was enacted in November 1942.

The new law, which is believed to be one of the few, if not the first of its kind, in the United States, prohibits cross-connections except under permits from the State Department of Health. Permits are issued only if approved by the local health and water authorities and only if a complete all-bronze double check valve installation is made. A penalty of $100 per day is prescribed for the maintenance of a cross-connection without a permit.

"Cross-Connection Conscious"

"With very few exceptions," said Mr. Shaw, "the only water-works men, who are truly cross-connection conscious, are those who have been confronted personally with trouble in their own supplies by a cross-connection. Water superintendents who have had the most experience feel the least secure. They know what a vicious thing a cross-connection can be and how suddenly trouble may strike, and how utterly helpless a water superintendent can feel after the damage has been done."

Challenged Audience

Mr. Shaw challenged his audience by saying "without fear of contradiction not one water superintendent in this audience is sure that his water supply is not being contaminated through a cross-connection at this hour."

Costs Assigned for Street Improvements

POTENTIAL real estate developments must assume the full cost of building hard-surface streets and sidewalks to the town's specifications in Milton, Mass. This eliminates the practice, followed in past years, of owners or developers opening streets and causing the improvement to be the responsibility of the town.

Officials here have established an organized plan of improving the remaining streets and have approximately 21 miles left to surface. Seven-eighths of a mile will be improved this year.

Patches Are Fashionable

How to Salvage and Rehabilitate Old Concrete Pavement

DON'T think that merely because a patch for a concrete pavement is relatively small it can be dismissed as comparatively unimportant. Patches generally denote weak points either in the concrete or the subgrade and must be given close attention both as to design and construction.

This type of repair work was classified by the Subcommittee on "Salvaging Old Pavements—Rigid Type," of the Highway Research Board at its 1942 meeting, whose report will soon be published as a Wartime Road Problem Bulletin. Here is the classification:

Full-width patch constructed one lane at a time
Half-width patch involving a single traffic lane
Exterior edge patch
Interior edge patch
Plug patch

Other Alternatives

This covers conditions normally arising under ordinary conditions. Some of the more complex many-laned streets may present other alternatives; however, a thorough understanding of the basic principles will enable the maintenance man to handle these exceptional problems.

To meet the varying conditions under which the patches are constructed, the Committee has advanced the following recommendations:

When repairing thickened edge type of paving, use a depth 1.3 times the center thickness of the original concrete on patches involving unprotected corners; and 1.2 times the center thickness for repairs covering protected corners.

When repairing a uniform-thickness pavement having load-transfer devices at the expansion joints, construct the patch with a depth of 1.1 times the original slab thickness for all patches involving unprotected corners; for all other patches, use the same depth as the existing pavement.

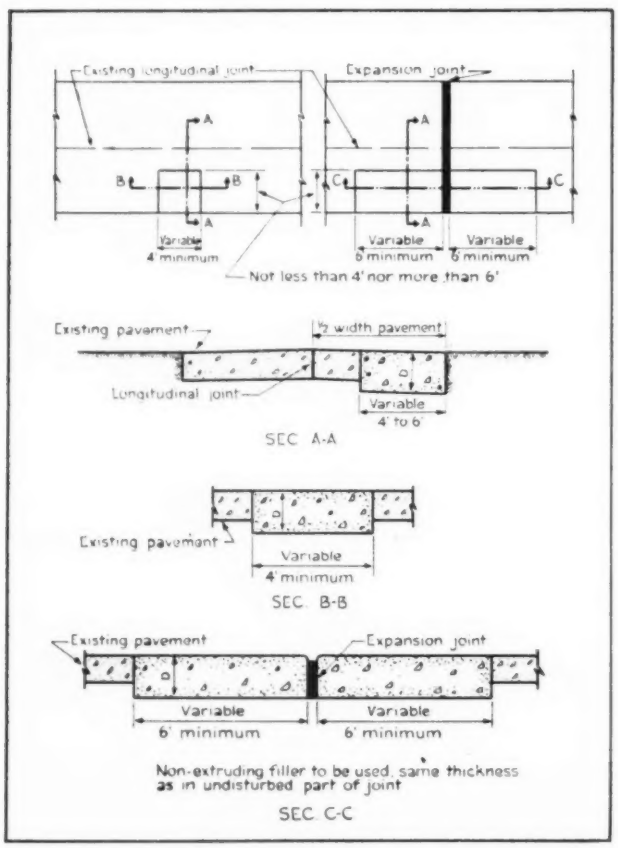
When the pavement is of uniform thickness and without load-transfer devices, make the patch the same depth as the original pavement.

Full Width Patches

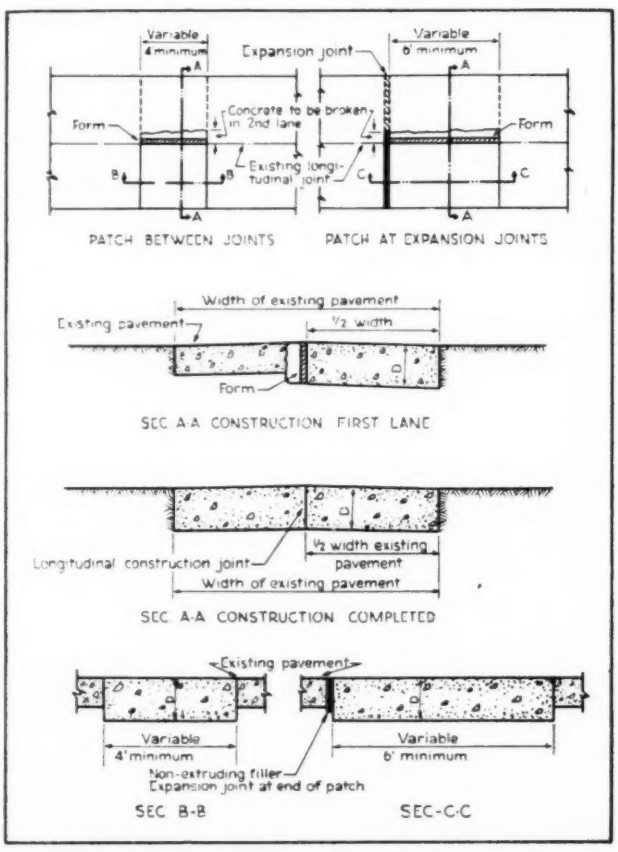
When full-width patches are required, maintenance men are familiar with the need for using lane-at-a-time construction. It is important to remember, in this regard, to set the form for the first lane patch so that it does not touch the broken concrete in the adjacent lane. This will reduce vibration caused by passing vehicles. Similar precautions should be followed when using a plug-type patch. Also if the patch is more than 30 feet long, it graduates into a young paving project and should be supplied with dummy contraction joints to form slab lengths of 15 to 20 feet.

Vertical Faces

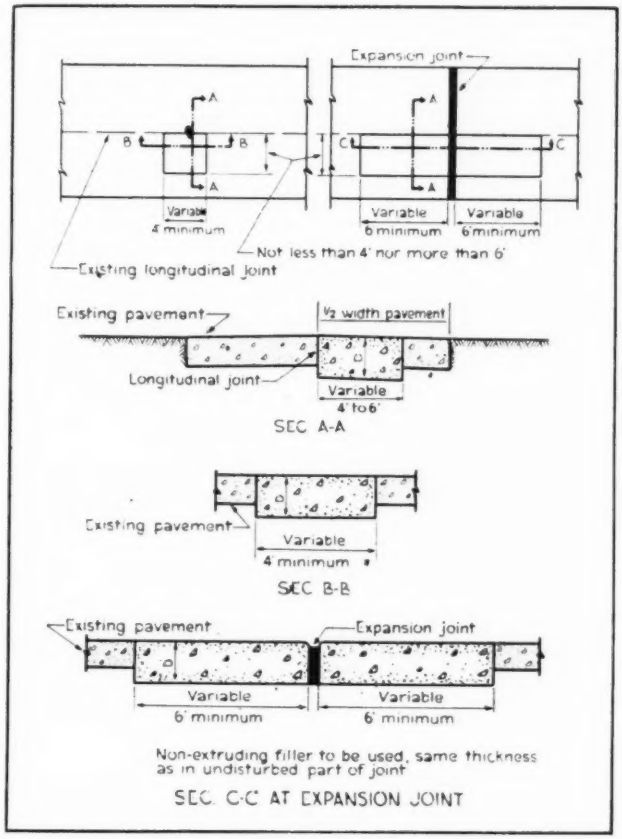
In cutting away the damaged concrete, care should be exercised to produce edges of the slab that are within 1½ inches of vertical. The edges also should be free from dust, dirt, and loose particles. Just prior to placing the concrete the edge should be moistened to secure good bond.



Exterior edge patch.

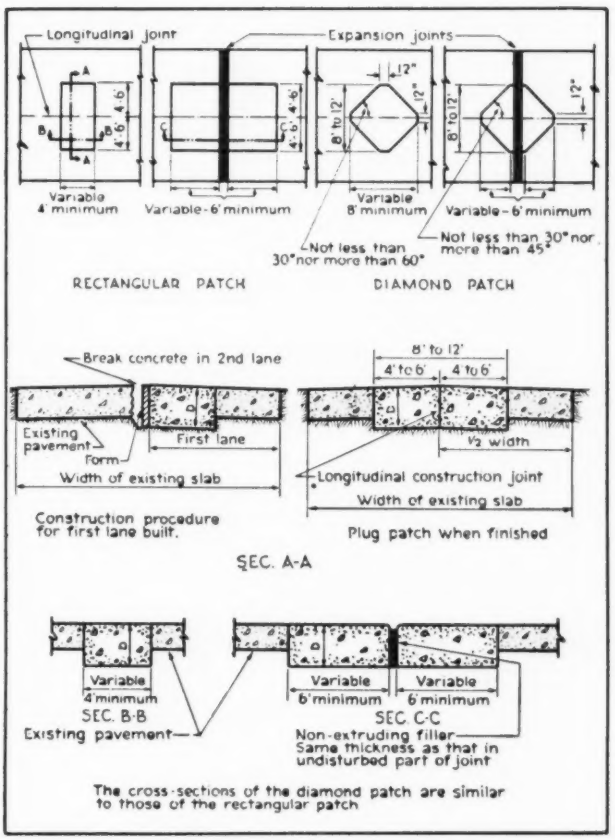


Full width patch, lane-at-a-time construction.



DRAWINGS COURTESY HIGHWAY RESEARCH BOARD

Interior edge patch.



Plug patch, rectangular and diamond shaped.

The subgrade must not be neglected when preparing for these patches. Frost boils or seepage from rock outcropping often are the underlying reasons for the damage to the pavement, and these faults should be remedied by adequate drainage and proper selection of soils while the patch is open.

High Early Strength

Since it is important that the patch be opened to traffic as soon as possible, the committee recommends that the mixes be designed to allow for high early strength. These strengths may be attained by either using low water-cement rations with normal portland cement, by using high early-strength portland cement, or by adding calcium chloride to both the normal and high early-strength portland cement mixes. In any case, the mix should be as dry as possible and still be compacted and finished. When using either normal or high early-strength portland cement, a limiting water-cement ratio of 4 gallons per sack should be used to avoid excessively rich mixes with possible difficulties in placing and curing and resulting high volume changes.

The addition of 2 per cent calcium chloride will increase the one-day strength of the concrete, about 160 pounds per square inch for normal portland cement, and about 110 pounds per square inch for the high early-strength concrete, although the 7 and 28 days strengths remain substantially unchanged.

Concrete Shrinks

It should be remembered that concrete shrinks slightly as it hardens. Therefore, it should first be struck off slightly higher than the original slab. Old timers in the maintenance field are familiar with the practice of delayed finishing, and how a second tamping and screeding will minimize shrinkage.

All transverse and longitudinal joints and outside edges should be edged with a tool having at least a ¼-inch radius. The patch itself should be finished to a surface texture as similar as possible to the existing pavement.

Curing

Curing may be accomplished by any of the methods generally specified by recognized road or street construction authorities or, under wartime conditions, those recommended by the Highway Research Board in "Curing Concrete Pavements under Wartime Restrictions on Critical Materials." Because patches are generally small and scattered, it will ordinarily be more convenient to use a method that does not require continued applications of water. Methods which might be used include curing membranes, impervious paper, or mat coverings which when thoroughly wet down upon application will not further require wetting.

It is suggested that, except in cases of emergency, the curing of patches be continued until opened to traffic or until the concrete in the patch has developed a modulus of rupture of not less than 500 pounds per square inch.

Spray Cure

If a supply of water is convenient, as often is the case in street repair work, city officials may find the continuous use of a fine mist spray well adapted to their type of repair work. Tests conducted by the Public Roads Administration, reported by H. F. Clemmer, Engineer of Materials for the District of Columbia in the APWA bulletin, "Emergency Design of Concrete Pavements and Bases," indicate that excellent curing results may be obtained by using such a spray for a 72-hour period. During the first 24 hours, the spray should be continuous, and during the rest of the period the spray need be applied only during the daylight hours of 7 a.m. to 7 p.m. PRA recommends that one operator be required for each 500 square yards of pavement surface.

How Council Bluffs Fought Off a Flood

A midwestern city that didn't know the meaning of the word "Quit" met and mastered damaging assault by the Missouri River

JACK BOYNE, City Engineer at Council Bluffs, Iowa, knows what it is like to be a general. Without the benefits of the uniform, the gold stars, and the usual fanfare that accompanies this important, high ranking position, he nevertheless anticipated an attack, planned his defense, coordinated his regular forces with those drafted from the outside, and successfully protected his city. He fended off an attack not from invading Axis armies, but from a damaging flood that had been ravaging the midwest throughout April and May.

Army Gives Warning

On April 5, Mr. Boyne received a call from the Army engineers, whose alert observers had apprehensively watched weather reports and gages along the already swollen Missouri River. These men relayed the story that, according to their calculations, they anticipated a rise in the river to an elevation of 24 feet. On the same day, the weather bureau in Omaha warned him against a rise to 21 feet; and upon further checking, he learned from the weather bureau at Kansas City, that they expected a river-stage of 23½ feet.

These were gloomy stories when he checked over his city's levee protection. Although it was considered adequate to withstand the most vicious of the attacks that the muddy Missouri was known to have offered in the past, he knew that they would never stand this assault. He knew this all too certainly, since he had, as soon as he received the information on the expected stage, run levels over the entire levee protecting his city and found most of it from one to three feet below flood-stage. As it stood, Council Bluff's river defense had about as much chance as the Dutch army against the German blitz.

Fight or Evacuate

At this point Jack Boyne had two choices: he could evacuate the affected areas, or he could stand and fight. If he recommended evacuation, no one would criticize him. To strengthen the river protection that much might well be considered impossible. He had neither the funds, the material, nor the men necessary to put up such a battle, and he could get ample justification for the more cautious course. But this alternative never even entered his mind. For him there was but one course of action—that of rushing the emergency protection and doing the "impossible."

So, on the same day he called a meeting of the City Council, and summoned heads of the various railroads and other industries most vitally concerned. The Council listened to his report, investigated his sources of information and then, waiting dangerously until the following day, empowered him to proceed with whatever measures he saw fit to take to protect the city from the flood.

"Then," said Engineer Boyne, "my total responsibility began. From then on, the protection of Council Bluffs, its vital railroad shops and terminals, its industries, homes, and all that goes with them, was my baby."

Levee District

Like the rest of the areas needing flood protection, Council Bluffs is protected by a levee "district." Seven miles of these earthen dikes surround the city and tie into the sharply sloped, picturesque bluffs formed by the wind-blown loess soil peculiar to that area.

This dike protected approximately 10 square miles of land — improved land, homes, streets—a large portion of which would have been seriously affected had there been a breakthrough. Included in this is the water-works pumping station, which supplies approximately four million gallons of water daily. Two million of this goes to eight main-line railroads in Council Bluffs which are supplying vital war transportation.

To protect this important seven-mile levee, Jack Boyne needed three things: material, men, and equipment. For material, he rounded up 175,000

A scene at the water-works pumping station three days before the crest of the flood stage. Water rose to a point halfway between the rods of the fence in this picture. Note the secondary defense of sandbags around the station.

burlap bags, which he later filled with sand and dirt to make sandbag reinforcements. The problem of men was more ticklish, since he had no funds to hire the enormous army that finally was mustered. Consequently, he appealed to the Government and obtained permission to bring in a force of conscientious objectors, located in a camp some 60 miles away. The only stipulation attached to their use was that the city should pay for their board and room, and gasoline for their trucks. They reported on April 7, and went to work at once.

Next, he was granted authority to transfer all city employees from their regular routine jobs to work on the levee. This included water-works, sewer, street and alley, park, police, and fire departments. But even with these, he could see that there were too few men for the job that remained. So, with the assistance of the Superintendent of Schools, he drafted enough boys from three high schools to build his force up to 560 strong. Still not satisfied, he called in the Iowa Highway Commission which contributed two draglines, 20 trucks, and 40 men. And from the various utilities—the street car company, the light company, and the gas company—he coralled another 120 men.

Railroad Cooperates

This only protected the city from the north and west, leaving the southern part vulnerable. Meanwhile, after contacting the various railroads, the Union Pacific pledged him 415 men, two draglines, two bulldozers, and a fleet of trucks. With this equipment they rebuilt the south dikes, making them higher and wider. The railroad had a second reason for cooperating so well with the city as it was protecting its own yards and equipment.

Altogether, in this incredibly short period of time, he amassed the following array of heavy equipment:

Four Michigan ¾-yard draglines with 40-foot booms.

Two one-yard draglines, a Bay City, and a Northwest.

One 2-yard Koehring dragline with a 50-foot boom.

Three "tumblebugs."

Five Allis-Chalmers diesel tractors with bulldozer connections.

Two RD-8 and two D-7 Caterpillar tractors.

Three auto patrols with 12-foot blades; one, a Caterpillar and two Adams.

A fleet of dump trucks varying in capacity.

Coupled with this, not directly connected with construction work, was a number of Red Cross trucks equipped to serve lunches and otherwise care for the workers. The Army also furnished 50 large four-wheel drive trucks to be used in case evacuation was necessary.

Organizations Help

"We had the help of the Red Cross, Salvation Army and other splendid organizations," says Mr. Boyne. "Altogether I would estimate that about 1,100 men, women, and children worked on the levee, all on a purely voluntary basis and wholly without compensation. Under orders from Governor B. B. Hickenlooper, 400 state guardsmen were sent to this area under the command of General Matt Tinley. He placed them on the dikes, walking a post 300 yards apart. It was their duty to watch for weak points such as sand boils in the dike. When the guardsmen would spot such a flaw in their defense ring, they would immediately report it to the workers, or to the patrol of trucks filled with sand bags that could be quickly rushed to the spot.

"This continued for seven days and nights, most of which were filled with cold raw winds and driving rain," he recounted. "Finally at two A.M. of the eighth day, the crest passed and the crisis was over. According to the gage at our water works, the river reached a stage of 24.9 feet, over-reaching by almost a foot the highest forecast made by any of the engineers who gave us the original warnings."

Damage Avoided

Appraisers have estimated that had Engineer Boyne's vigorous defense not been successful, Council Bluffs would have lost about $8,000,000 in destroyed property. As it was, the city still has paid heavily for its protection. There was an expense of about $20,000 for bags, and between $5,000 and

Above: some of the conscientious objectors filling sand bags six days prior to flood stage. Below: six days after the flood showing the drift along the riverside of the sand bags. Bags were piled 8 high, and 2 and 3 wide. This levee is now being raised two feet above the bags to a width of 30 feet.

$6,000 for extra labor and incidental costs.

"Count on the credit side of the ledger these important items too," says Mr. Boyne, "during the entire eight days, despite adverse weather, difficult working conditions, and all types of volunteer help, there was not one serious accident or casualty."

With this crisis past, Council Bluffs does not plan to relax and forget the whole affair. Officials have watched the ways of the river too long not to know that there is no possibility of relaxing their vigilance. Now work is under way to raise and enlarge the levee for the entire distance bordering the city. The construction is based on the river-wise rule of "two feet higher than the highest recorded flood," and then keeping an attentive ear open for the reports by the constantly alert Army engineers and the well-trained technicians in the Weather Bureau.

Flood conditions were further aggravated in the vicinity of Council Bluffs by the narrowness of the river. Omaha, located directly across the river, suffered a severe break in her river protection—inundating her airport under eight feet of water.

Making the Small Plant Attractive

The Water Works at Jackboro, Texas, Wins State-wide Recognition by Using Native Material and Ingenuity

A WATER works, like a good-looking girl, doesn't need to be big to be attractive. And the recognition that water-works operators in the state of Texas gave to the little city of Jacksboro proves that they realize it.

The water works for this colorful little town of 2,500 population has had an interesting career. As late as 1938, it was limited in size to small pumping capacity and served relatively few customers. However, during that year an oil boom boosted the population to its present size, and officials decided to establish a new adequate supply.

Used Site of Pioneer Fort

After a careful study of available sites, they decided to locate the new wells on a block of land owned by the city—used in the early days as a fort for soldiers to protect settlers from hostile Indians. This required new storage and booster pumps, since the location was some distance from the old supply. After one well was constructed, developing good water-bearing characteristics, the town constructed a small temporary pumping station and ground storage facilities.

In 1940 the county replaced its old courthouse that was built back in 1885 with a new, up-to-date structure. While the building itself had become antiquated, there was nothing wrong with the hand-dressed limestone rock used in its construction. Consequently, the town acquired them and decided to design a new pumping station and storage facilities, setting it up as a WPA project. This enabled them to construct an attractive little fireproof building, terrace the yard, and generally beautify the surroundings. Several hundred feet of new water mains were included in this work.

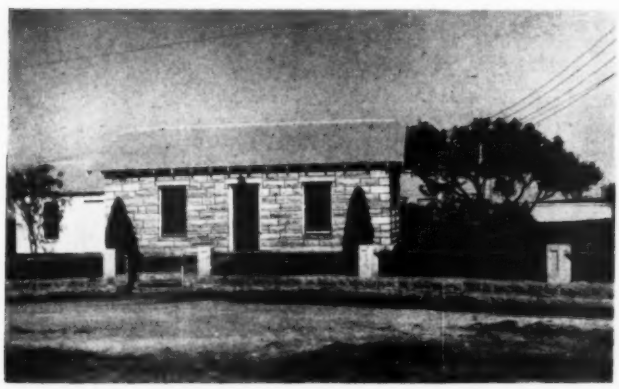
In recognition of this well-planned development, Texas water-works operators at their annual short school, held at the Texas A. and M. College last February, awarded the plant the honor of being the most attractive in the entire state.

The plant itself consists of one 286-gpm centrifugal pump and one 168-gpm pump, both three-stage and capable of pumping against a 170 foot head. It also uses a Wallace and Tiernan manually controlled chlorinator, and the storage for the water is supplied by a 119,000 gallon reinforced concrete ground storage tank, one 180,000 gallon steel storage tank, and one elevated tank of 75,000-gallon capacity. The plant equipment pumps the water into the ground storage tank and the booster pumps raise it to fill the overhead tower.

The booster pumps are located at the old plant. This consists of a single 215 gpm, two-stage pump working against a 150-foot head. A Wallace and Tiernan chlorinator also is located here. Parts of both chlorinators are interchangeable.

The water is very soft and requires no chemicals. In 1938, Mr. Tate reports, he took up 1,600 feet of six-inch gas iron pipe that was laid in 1911. He observed that all pipe was in excellent condition.

Hawley, Freese, and Nichols of Fort Worth were the designers of the original plant. Owen T. Funk of Bridgeport, Texas, was the engineer on the reconstructed project.



Jackboro's attractive little plant is the result of imagination and the careful use of local material.

A view of the plant interior shows the thorough housekeeping job that the operators performed here.

Snowiest City in North America

A Sicard snow-blower acts as a loader on one of Montreal's busy streets. A loop of preformed wire rope keeps the spout pointed into the body of the truck.

Montreal, Canada, Shows How to Handle Snowfalls that Total Nearly 12 Feet in Depth Annually

By A. E. PERKS
Chairman, Municipal Press Gallery
Montreal, Canada

IN an average winter there falls on the streets, sidewalks and roofs of the city of Montreal anything between 80 and 140 inches of snow.

That would be a lot of snow, even if it lay smooth and even all over the city, from 7 to 13 feet deep. But it doesn't. It blows, slides, and falls from the roofs to add to the quantity in the streets, and it blows and drifts into huge piles at the most inconvenient places.

In other words, it is doubtful whether any city of a million inhabitants has as great a job as Montreal in keeping its streets cleared of snow to such a degree as to make automobile traffic practicable all winter. At a cost of a little over a million dollars a year, with an organization that has been built up during half a century, and with the best available in snow-handling machinery, Montreal does it.

Last winter the total snow precipitation was 126 inches. There were two violent snowstorms which blocked traffic for a few hours, but the city's street-cars, motor buses, and essential traffic were running on schedule long before the railways were.

Remove the Snow Quickly

One of the essentials is getting at the job quickly when the snow starts to fall. The city has an agreement with the Street Railway Company whereby the latter does half the work and bears half the cost on the streets where the tramway lines are. As soon as a snowstorm begins, the tramway company gets out special cars that push big snow-plows ahead of them, clearing tracks and a few feet either side.

Simultaneously, the Street Maintenance Branch of the city's Public Works Department, under the direction of an able civil engineer, Lt. Col. Joe Brosseau, gets its big snow-plows to work on the main thoroughfares throughout the city. As soon as these machines are well at work, smaller machines move out to attack the side streets. Apart from the central depot, this equipment is garaged in winter in subsidiary sheds toward the outskirts, in order to get into action quicker. The plows push the snow off the pavement toward the sidewalk.

For this work the city uses three big V-type snow-plows with Willett blades, one Walter snow-plow, a 5-ton truck with a snow-plow and a Willett blade, ten 3½-ton trucks with snow-plows attached, sixteen 2½-ton trucks with snow-plows attached in front and six others with the plows attached on the side. There are also 46 water sprinklers to which snow-plow blades are attached in winter for this work.

At the same time, the sidewalks must be cleared before the residents of outlying districts begin telephoning that they can't get to the street-car and be-

fore store owners start complaining that no one can get to their stores because of the sidewalk's being blocked.

To this end 95 two-ton Case and International tractors with snow-plowing blades in front go to work all over the city. They are frequently supplemented, in the less populated districts, by horse-drawn plows which partly scrape the snow away and partly pack it down, with the driver standing on the plow to give it weight.

The city has had experience with both caterpillar and rubber tired tractors and finally found that it needs both for sidewalk duty. When the snowfall is relatively light, up to say, 3 inches, the rubber-tired machines give splendid service. They get to the scene in rapid time, and they work up and down the sidewalks quickly and efficiently.

When you come up against a 9- or 10-inch snowfall, however, or when you run into heavy snowdrifts covering the sidewalk, the rubber tires don't give enough traction to push that weight of snow around, especially when the snow has had time to pack a little. In such conditions the tractor with caterpillar drive moves more slowly, but it pushes a tremendous weight of snow. After much experimenting, therefore, Col. Brosseau and his immediate senior, H. A. Gibeau, Director of Public Works, said they figure both types of machine are necessary for Montreal's job of snow removal.

Snow Removal

The sidewalk plows push the snow back toward the pavement, so that when the snow-pushing is over there is a mountain ridge of snow along the curb several feet wide at its base and rising sometimes 8 or 9 feet high.

Next, comes the problem of carting the snow away. To this end, the city employs 18 snow-blowers, about a dozen automatic loaders, all the trucks available in the city's service, and as many more as they can hire. The trucks that push the snow-plows also go into service for carting the snow away.

When the snow is reasonably soft and when there is adequate room to work, the snow-blowers suck it up from the pile and either blow it into nearby trucks or else, if it is in the outskirts where there is vacant land in abundance, blow it, over the tops of houses if necessary, to dump on the vacant lots.

Where there isn't room for the blowers to work or where the snow has had time to pack and develop big blocks of ice, the loaders go to work. They operate with a chain of big metal buckets, circulating on an endless preformed wire rope. When the bucket suddenly picks up a huge lump of ice in the middle of a pile of snow, the jerk is violent and would smash anything but the soundest equipment. The rope is also subject to heavy "bending" strain at the top and bottom of the long elipse it forms. On account of this heavy strain, Col. Brosseau told me, the city specifies preformed wire rope.

The wire rope used in the snow-blowers is also invariably preformed, the engineers informed me, because of the heavy strain. Here it is not only a question of economy and long life of the ropes. A still more important point is that disaster follows if a loader or blower breaks down on the job—especially if it is far from the base, and still more especially, if it is during a big storm, and there are no spares available to replace the damaged one.

In addition to the machinery, a thousand or more day laborers are usually employed during the height of the storm, shoveling and cleaning up corners.

Disposal in Sewer

Once a truck is filled with snow and ice—a loader can fill one up in three minutes—the next big problem is what to do with the snow.

It can't be dumped in the river. The river is frozen all winter and gives the navigation authorities trouble enough when the break up starts. It is to a very large extent dumped into the sewers, but that has to be done carefully. Any sewer engineer can imagine what happens to even a 30-foot sewer when a few tons of combined snow, ice, and frozen mud are dumped into it in a hurry. The sewer engineers of the city of Montreal know plenty on that subject. And if the snow were freely thrown into the 6- and 8-foot sewers, there would be city-wide disaster.

Part of it is also disposed of by being piled up on vacant land on the outskirts of the city. That is the easiest method, but since the city is built on the slopes of a mountain, there are only certain locations that are good for that purpose. On the plain at the rear of the mountain, it is all right to do so, but where the grade is steep, too much snow piled up means flooding when spring thaw comes. A very big part of it has to be carted to points in the lower part of the city where manholes give access to the 30-foot sewers.

Parked Cars Cause Trouble

Parked automobiles constitute one of the big troubles both in pushing the snow off the pavement and, later, in picking it up. One car parked at the curb may prevent a notable stretch of street from having its snow removed. The loaders have to bypass it. They haven't time to wait while the police department comes to drag the offending machine away. Notices are, therefore, placed along the side of each street several hours before the loaders and blowers come along, warning all car owners not to park, or to take the consequences.

A decision reached this past winter, and which will be put into effect next winter for the first time, is to give warning when a snowstorm is expected and advise car owners to keep off the streets unless absolutely necessary, and advise others to avoid needless travel until the storm is over. This cannot be done by radio owing to wartime restrictions, but the warning will be given, as long ahead as possible, by placards hung on streetcars and on all city-owned vehicles, by boards at street corners, and possibly by loud speakers at a few central points. This is expected to facilitate the work of combating the storm and also reduce the number of storm accidents.

WPB Meets Flood Emergency

PROMPT action by the War Production Board and its field offices, supplementing the activities of organized relief agencies, formed an important part in alleviating the vast damage done recently by the floods in eight midwestern states.

The WPB machinery for granting priorities for critical materials required to rehabilitate municipal services was quickly thrown into high gear, and emergency authority was given to local offices in order to eliminate all possible delay.

The Evansville, Ind., WPB office extended a rating to the city of Vincennes to purchase nails and lumber to build its seawall 3 feet higher. Water reached the top of the extended wall, which held.

The WPB office at Decatur, Ill., extended a rating to the city of Paris, Ill., to purchase a large pump for its Fire Department when the old one broke down. Basements were pumped out by hand until the new pump arrived. The field office also issued a rating to Hume, Ill., to purchase a pump to handle sewage backing up in the mains.

Downtown Air Terminal—*Fantastic?*

By Earle K. Radford
Executive Secretary,
City Plan Commission, Kansas City, Mo.

"FANTASTIC," "well anyhow you can give your imagination a workout," and "it's fortunate the City Plan Commission serves without compensation—at least the taxpayers' money is not being wasted on such starry-eyed dreams." These are some of the comments made when the City Plan Commission of Kansas City, Mo., presented for inclusion in the city's Post-War Planning Program a project for a downtown air terminal.

Fantastic! visionary! No, not in the slightest degree is this project "fantastic" or "visionary" to the Commission which has given a year's study to the practical use of the helicopter plane for air taxi-cab service. Certainly, members of the Commission cannot be described as being visionary. Mr. Herbert V. Jones, for example, has been Chairman of the Commission since it was created 23 years ago. He, along with other members of the Commission, simply realize that lack of vision and the ability to sense advanced trends in transportation in the past two decades, are factors responsible for most of the work now being done in the City Plan office. Correcting the mistakes of the past and re-planning the plans of yesterday, are today the main concern of the office staffs of many planning agencies.

With the wisdom gained through transportation studies made during two eras of transportation—the street car and automobile eras—the Commission feels that the development of a complete network of airports in the surrounding territory and a centrally located air terminal should be given A-1 priorities in the Post-War Program.

Now that we are on the very threshold of the air age, skyways as well as highways must be considered as city planning problems. Unlimited in scope and direction is the superhighway of the air—a highway which runs in all directions from the city and which is open to traffic the moment appropriate airplanes are available. This sky-

The development of the helicopter plane and the fact that Kansas City is gradually being encircled with outlying airports have impressed the City Plan Commission with the need of a centralized terminal. The site selected is on city-owned property north of the Municipal Auditorium.

way will require no steel rails for flying box cars; no concrete slabs for flying trucks and pleasure planes. This highway is, indeed, "fantastic" but it is here and, furthermore, will be opened to traffic on the very day suitable planes are available. To be ready for the "go signal" when this super-highway is opened shortly after the war, the City Plan Commission has designed an air terminal and located it in the very heart of the downtown business district.

Regardless of the effect future air travel will have on urban developments in the post-war period, the Commission feels that the best form of insurance against the change in city planning which will inevitably be brought on by the new mobility of the air, is in long-range planning for the acquisition of strategically located highland ports to be serviced from a centrally located air terminal. From such a terminal, taxi planes of the helicopter type, which lift and land vertically, can reach ports adjacent to the city in five or ten minutes and, furthermore, such a terminal might easily service all airports within a hundred miles.

The Commission's post-war air terminal project, therefore, visualizes a short haul taxi-plane pattern for the centralization in Kansas City of air traffic in this area. The last remaining gateways to the cities of America are about to be thrown open to the air passenger and the cargo plane. Planning to the end that air traffic of the future be terminated in the downtown district, rather than left stranded at numerous outlying airports, is the City Plan Commission's aim in designing this air terminal for Kansas City, Missouri.

Houston Chamber of Commerce Urges Consideration of $50,000,000 Post-War Public Works

A RINGING challenge for imagination and action in large-scale post-war planning is set forth in recommendations to the City Planning Commission of Houston, Texas, by the Post-War Planning Committee of the Houston Chamber of Commerce, Hugh Potter, Chairman.

Pointing out the difficulty under ordinary conditions of awakening the public to the high value of city planning, the memorandum adds:

"Right now, however, it will not be so hard because all of us here at home are aroused to the heroic performance of our younger people. We are filled with the desire to repay them in some small way. Post-war planning is primarily for them. They would like for us to tackle Houston's future by making the best plans *now* of which we are capable. We recommend that the Planning Commission undertake a campaign of education, through our schools and colleges and other available agencies, looking to the participation of all the citizenry in Greater Houston's Master Plan. It must be the Peoples Plan."

The Chamber of Commerce Committee urges cooperation of city and county officials in the development of a regional plan, and in preventing the subdivision of land without adequate utility installations and building permits.

Among the types of projects urged for consideration by the City Planning Commisison are the replanning of deteriorated areas and their re-development by private enterprise; the completion of the Civic Center; the elimination of grade crossings; the planning for additional air fields the improvement of local rapid transit; the rearrangement and coordination of transportation terminals for railroads and buses; the establishment of set-back lines on streets designated for widening; the revision of the city's antiquated building code; aiding the Park Board in its expansion program; and minimizing of parked motor vehicles in congested downtown streets.

Plea to Planners

This forward-looking memorandum concludes with the following plea to the City Planning Commission:

"Houston is approaching a period in her history in which a huge volume of public works will be done, estimated by some to cost at least $50,000,000. We are literally forced into this big city building program by the impact of three concurrent influences—

(a) Long neglect of municipal plant

(b) Postponements and interruptions necessitated by the war

(c) The phenomenon of rapidly increasing population

"To enter upon such a building era partially blinded by the lack of a complete set of blueprints would brand us as a shortsighted and unimaginative people. *The cost of such preparation would be less than one-tenth of one per cent of the amount to be invested.* It is the largest and most important architectural and engineering job ever to arise in Houston. It lies clearly within the province of the City Planning Commission to take the lead in seeing such a plan prepared now before it is too late. The state statute and the city ordinance under which you are officially operating carry this mandate."

Vermont Wants Better Town Halls

AS most readers of THE AMERICAN CITY are aware, Vermont is one of the states in which the New England town meeting still flourishes. But in some municipalities of the state, the Town Hall is far from being an adequate place for such meetings. To urge improvement of this condition was one of the purposes of a challenging talk* giving by Governor William H. Wills, at Montpelier on May 28, 1943, before the annual meeting of the Vermont Federation of Women's Clubs.

Asking, "Cannot town meetings and other official gatherings be marked by more dignity, more significance, more sentiment?" the Governor answered his own question as follows:

"There are Towns in whose Town Halls there are neither floor space for the people, nor floor space for efficiency in the conduct of public business, nor floor space for the dignity and the sentiment of the occasion.

"Town Halls were first built for men, only the men.

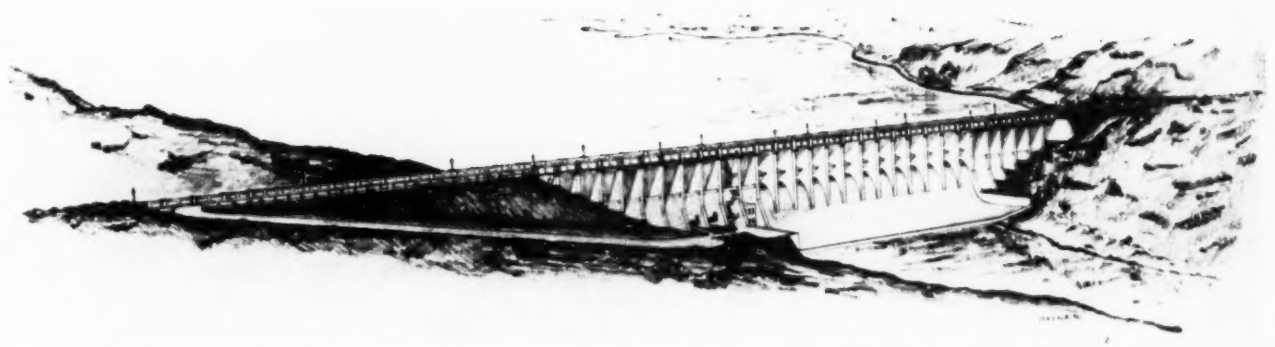
"Then the women were invited in as participants.

"And now, in come our young people as observers and guests.

"But the Town Hall buildings have not grown to match the growth of the membership of these local parliaments. Many of the Town Halls should be enlarged or replaced, especially if we resolve to imitate Denmark's recent record of a practically 100% vote on a public question.

"Then there are Town Meetings which are not crowded at all, pitiful occasions with only a handful present. Who but you women can make it a matter of good form, a matter of social necessity, a matter of pride for all the men and women and older young people to attend every Town Meeting to vote on every public question."

* Available on application, in pamphlet form, from the Vermont State Chamber of Commerce, Burlington, Vt.



A sketch of the dam being constructed on the Patuxent River by the Washington Suburban Sanitary District.

New Dam Strengthens Maryland Water Supply

How the Washington Suburban Sanitary District Is Attempting to Meet the Added Demand for Water in the Suburban Area of the Nation's Capital City

By HARRY R. HALL
Chief Engineer, Washington Suburban Sanitary District

THE Washington Suburban Sanitary District is putting the finishing touches on a dam in the Patuxent River that will help alleviate some of the water shortage problems arising in this area because of the war.

This district serves the Maryland suburbs of the national capital and is numbered among those areas in the country vitally affected by the war. Many Federal buildings and both Federal and private housing developments have arisen to accommodate the growing army of government employees drawn to Washington. In one section alone, two years ago rural in character, and situated well beyond the limits of the water system, two large government office buildings and a pair of sizeable housing projects have been constructed in anticipation of more than 10,000 people before the end of 1943.

Planned for Growth

The District had foreseen this growth and already had prepared a long-range program calling for water supply development and extension of trunk mains in the distribution system. Construction work on the water supply development actually had commenced; however, the sudden impact of this population influx required the installation of arterial mains in the system that normally would not have been needed for many years.

The present project, estimated to cost $2,500,000, calls for a dam, an intake on the river, a pumping station with a capacity of 13 mgd located 12 miles below the dam, a force main to a new 10 mgd filter plant, and a filtered water supply line 7½ miles long to the present distribution system.

Until recently the only part of this work actually under way was the dam, started in November, 1941. Although contracts had been awarded for more than a year for the filter plant and the pipe line, the situation with respect to critical materials prevented the starting of work, and only within the last three months has it been possible to proceed. A contract was let in April for the pumping station, and work is now in progress on all the remaining features of the water supply project. The pumps already have been purchased.

Dam Substantially Complete

The dam, practically finished except for the crest gates, is 995 feet long. Of this, 600 feet consist of concrete construction and 300 feet earth embankment with concrete core wall. A 26-foot roadway and a 4-foot sidewalk extend across the top at a height of 80 feet above the stream bed. The maximum depth of water at the dam will be 63 feet.

The concrete section is of reinforced flat slab and buttress design, known as the Ambursen type. It is being constructed after designs prepared by the Ambursen Engineering Corp., New York, which has supervision of the work. This is the second dam of this type that the Sanitary District has constructed.

The design selected represents the result of careful study and cost comparisons with other alternatives such as earth embankment and gravity sections, all with both open and crest-gate spillways, on two different sites.

It is interesting to note that of the two sites, the one selected was more expensive when analyzing the dam itself. However, consideration of the land to be acquired, along with expensive road and bridge reconstruction, made the over-all cost of the site selected more favorable. The area above the dam site is admirably suited by topography for a reservoir.

The spillway of the dam will discharge a flow more than five times as great as any known flood in the past. A set of 13 steel radial gates, each 15 feet high by 18 feet long will control the water level in the reservoir. These gates cannot be acquired at present because of the scarcity of materials, so will be installed after the war.

Within the dam is a small hydroelectric plant capable of generating 120 kilowatts, to furnish electric current for operating the gate hoists, heating the

gates to prevent ice formation, and for lighting the roadway on the dam and the caretaker's house.

De-silting Arrangements

An interesting feature in connection with the dam is the installation of five 24-inch silt undersluice outlets distributed across the spillway section near the bottom, to provide means of blowing off silt-laden water during periods of high turbidity. To each outlet line is connected a 2-inch sampling pipe, properly valved, extending up to the walkway through the dam, through which samples may be drawn to determine the amount of silt being vented.

This work has been done after consultation with the Soil Conservation Service of the United States Department of Agriculture. These features are expected to serve as a means of studying the impact and movement of muddy currents against the dam, and to establish evidence as to the effectiveness of such outlets in the reduction of sedimentation, in order that the outlet designs of future dams may be improved.

The Sanitary District will work with the Soil Conservation Service in carrying out a program for maintenance of observations, designed to learn as much as possible about the occurrence of underflow currents and sedimentation within the reservoir. It is believed that the small additional cost of these undersluice outlets will be more than justified by the reduction in silting and the securing of information which will be of value for future water supply projects.

The Washington Suburban Sanitary District has an area of 114 square miles lying partly in two counties, Montgomery and Prince Georges. It has 333 miles of water mains and furnishes water to approximately 140,000 people. The principal source of water supply is the Northwest Branch of the Anacostia River at Burnt Mills, where is situated a filtration plant of the circular steel type, developed by its designer Robert B. Morse the first Chief Engineer of the District, with a nominal daily capacity of 10 million gallons. The watershed of the stream is 27 square miles and in times of low stream flow water is pumped into Northwest Branch from the Patuxent River at a pumping station at Mink Hollow, 2.5 miles below the Brighton dam, where 11 million gallons daily can be delivered through a pipe line laid across the divide. This pumping station was built in 1939 as the first step in the development of the Patuxent River.

Foundation

The rock on which the dam is built is a Wissahickon schist, a well-foliated quartz-mica formation. At the east end a fault in the rock structure required the removal of a much greater quantity to reach sound rock than the borings showed would be necessary. It was also necessary, because of unsound rock and the presence of water-bearing seams, to carry the concrete core wall of the embankment section on the west side to a greater depth than was anticipated. Wissahickon schist disintegrates rapidly when exposed to the air and requires care to see that the excavations are all carried to fresh, undecomposed rock. Dr. Joseph T. Singewald, consulting geologist of the Johns Hopkins University, examined the site and the core borings.

The design sought to eliminate seepage through the foundation by using grout holes drilled at 10-foot intervals under the cut-off wall in the concrete section. Every other hole was 50 feet deep and intermediate holes were 25 feet deep below the top of the rock. In the core wall of the earth embankment section the holes were spaced every 15 feet and carried to the same depths. It was required that holes be drilled and grouted between these if any considerable quantity of grout was required, but except for the last 180 feet at the west end in the earth embankment section only 8 extra intermediate holes were needed. In this section, because of the seamy condition of the rock, holes were put down at 5-foot intervals. Grout entered holes under a pressure of 80 to 100 pounds per square inch. The greatest amount of grout, measured by the cement content, placed in any hole was 66 bags of cement. Most of the remaining holes took from 3 to 4 bags, some requiring as little as one bag.

The reservoir will be 5¼ miles long and will have a total capacity of 6.5 billion gallons after the crest gates are installed. It will supply in the driest season on record, nearly 25 million gallons of water daily with full allowances being made for silting of the reservoir and evaporation from the water surface. Approximately 775 acres will be flooded. The Sanitary District has acquired some 2,500 acres of land for the reservoir and a protecting strip around it, and 960 acres are being cleared. A reforestation program, prepared by the Maryland State Department of Forests and Parks, already has been started and nearly 50,000 seedlings of loblolly, white and scotch pine and black locust were set out last April.

A general view of the dam under construction. Note how water is already being impounded although work is not yet complete. This supply assisted greatly in augmenting the district's heavily taxed supply.

Highways to Be Flooded

Three highways will be flooded, involving a total length of slightly more than a mile. One of these will be entirely relocated and carried across the

dam. The district has already constructed one mile of highway for access to the dam and is now completing the remaining section on the opposite side of the river half a mile long. Another highway has been raised and provided with a new bridge. The third highway will be closed and arrangements made for the improvement of a substitute road.

Completion Delayed

It was expected that this whole project for increased water supply would be in operation by the end of 1942, but difficulty in securing skilled labor has delayed completion of the dam beyond the time expected; and the critical materials situation, as already mentioned, has prevented earlier starting of the other parts of the work, so that it cannot be made available in its entirety, except for the dam, until the spring of 1944 at the earliest. However, the volume of water stored in the reservoir will permit larger amounts to be drawn from the Patuxent River during the summer months to supplement the existing source of supply.

Interconnections Arranged

For a reserve supply to be used in case of extremely hot weather, severe droughts, conflagrations, or failures in any parts of the Sanitary District System, several connections have been made to the Washington water system. These have been used to a considerable extent during the summer months in the past few years and particularly in the very dry fall of 1941 when the natural flows in both Northwest Branch and the Patuxent River dropped to low points. The demand on the Washington system is increasing rapidly as a result of the same condition that is affecting the Sanitary District, so very little water can be expected to be available from that source during 1943. Therefore, until the new water supply project is completed and in operation, it probably will be necessary to resort to restrictive measures during the summer months in order that adequate service can be furnished throughout the entire area.

The average daily consumption during 1942 was 9.32 million gallons. A peak demand of 14.5 million gallons was experienced in May and several days of more than 12 million gallons were reached, but during the usually hot and dry months of July and August frequent rains occurred which practically eliminated the need for sprinkling and at the same time caused stream flows to be well maintained. This fortunate circumstance eliminated the necessity of placing restrictions on the use of water in 1942. As the Sanitary District is almost entirely a residential area, the sprinkling load is heavy and peak consumption days of twice the average rate have been experienced on several occasions in past years. The highest single day was 16 million gallons in May, 1941.

Provide 20 MGD

The project now under way will provide for a dependable water supply of at least 20 million gallons daily, or twice the present average consumption.

Cities Cooperate to Meet Water Crisis

A DOZEN war plant communities along the northern rim of Detroit are assured an ample water supply this summer as the result of the combined efforts of WPB's Office of War Utilities, the Federal Works Agency, and other Federal and municipal agencies, according to an OWI bulletin.

Installed in record time, one or two of four pumps of 40,000,000-gallon daily capacity are scheduled to go into operation the end of July, followed at short intervals by the remaining pumps.

100 War Industries Involved

Nearly 100 war industries, including Chrysler Tank, General Motors Diesel, Vickers, Hudson Naval Ordnance, Briggs, Republic Steel, Allegheny Ludlum Steel, and many key parts plants, are located in the area to be served by these pumps. Many large war housing projects are also there.

A survey made by the Office of War Utilities earlier this year disclosed that the water requirements of these war plant communities had become so heavy that critical water conditions faced them this summer if they were forced to rely on their present facilities. The difficulty was lack of pressure rather than an inadequate water supply at the source.

Uses Nearby Reservoir

The OWU determined that it was impractical to lay sufficiently large pipes to serve these communities, but hit upon another solution. Located in Highland Park, a suburb within Detroit but much closer to the war plant communities than the main Detroit pumping stations, was a 40-million gallon reservoir being used for standby or reserve. Large water mains of the Detroit system passed close by, and the OWU engineer worked out a plan to connect this reservoir with the large water mains and thus pump water during daytime high flow demands from the Highland Park reservoir to the war plant communities, the reservoir to be filled at night with water from the Detroit system.

Problems Overcome Quickly

The plan involved a number of problems. The city of Highland Park had to be willing to make its reservoir available for the purpose. Pumps and pipes and power service had to be obtained, and the project had to be financed and built. All of this was worked out in the space of a few weeks.

Highland Park agreed to rent its reservoir to the Government.

The city of Detroit agreed to furnish Highland Park with necessary standby service.

The difficult problem of obtaining pumps was solved when the city of Philadelphia agreed to lend four new 40-million gallon pumps which were then being completed for its own water system.

The four pumps involved are De Laval motor-driven units, according to S. M. Van Loan, Engineer in Charge for the Bureau of Water in Philadelphia. He states that the ultimate installation location for pumping service in the city will be at Lardners Point station.

Krug Expresses Appreciation

The Federal Works Agency agreed to finance and construct the project. Suppliers of equipment and services cooperated fully. The War Manpower Commission, the U. S. Employment Service, and labor unions in the Detroit area furnished adequate labor supply to do a rush job, with the result that a project that even in normal times would have required at least six months was built in the remarkably short time of eight weeks.

"It is a wonderful example of cooperation in getting an important war job done in a hurry," said J. A Krug, head of the Office of War Utilities in the War Production Board.

Local Government Is News—31

Graphic Presentation to Aid War Production and Morale

By PHILLIPS BRADLEY

THE Navy always brings on the band when ships are being coaled: the rhythm in the music helps the tempo on the job. As we dig our trenches deeper on the home-front—for Victory—civilian morale needs the same kind of tonic in order to raise and keep our war effort at the highest pitch. What music is to coaling a ship, dramatic presentation of the nation's—and the individual's—wartime job is to civilian morale.

Although our national war agencies are primarily responsible for producing and distributing such graphic calls to home-front service, City Halls can do much to make them effective in the community. First of all, the job of display at key points—where the materials will be seen by the greatest possible number of people—is directly a City-Hall responsibility. War-morale exhibits should be prominently located in all public buildings. Outdoor exhibits at the main crossroads can be installed at little cost on temporary billboards. The public libraries can be utilized as exhibit centers. The local CDVO and its branches will also serve in the same way. Many civic groups will cooperate with City Hall by using war-morale displays in their own meeting rooms.

One of City Hall's main jobs is to see that the selection of materials is intelligently done from the point of view of stimulating citizen-interest. Some materials have a general appeal and should have city-wide distribution. Others will have special value for particular groups — workers, housewives, junior groups. Screening of materials to focus them on the interests and needs of special groups can be more effectively done by City Hall than by any other agency.

City Hall can also develop local morale-exhibits. The same people who do the graphic interpretation of annual reports can apply their imagination and skills to the dramatization of the local war effort. The achievements of home-town workers and plants, the progress in local preparation for the myriad civilian war jobs on the home-front have the best news-value and are the surest stimulus to citizen-morale. These individual and community records can, and should, be converted into posters, charts, and pictures—for those who run to read.

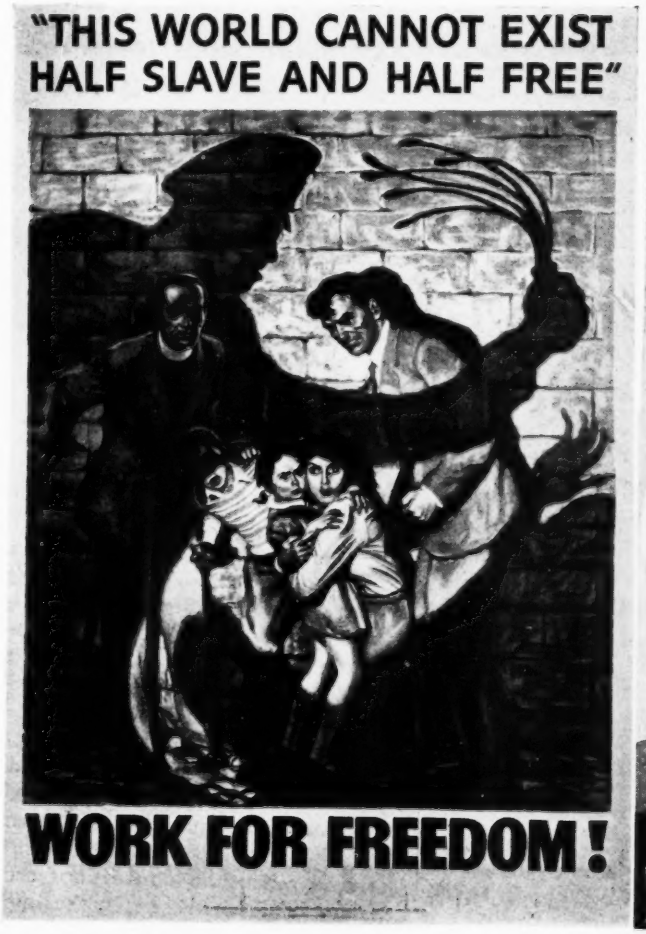
Perhaps the major job of City Hall on the home-front is to "keep 'em flowing." One exhibit is not enough. A regular system of exchange—and change—of exhibits should be established. Interest can be maintained by filtering in new materials from month to month. From the wealth of dramatic propaganda available for the asking, a scheduled flow can be worked out with little difficulty. If the city maintains an official information center, this function can be assigned to it. If not, someone in the mayor's or clerk's office (or whoever is best qualified in the administration) can be given the duty for organizing and managing the war-morale exhibits. It should be a regular assignment—but never a routine one!

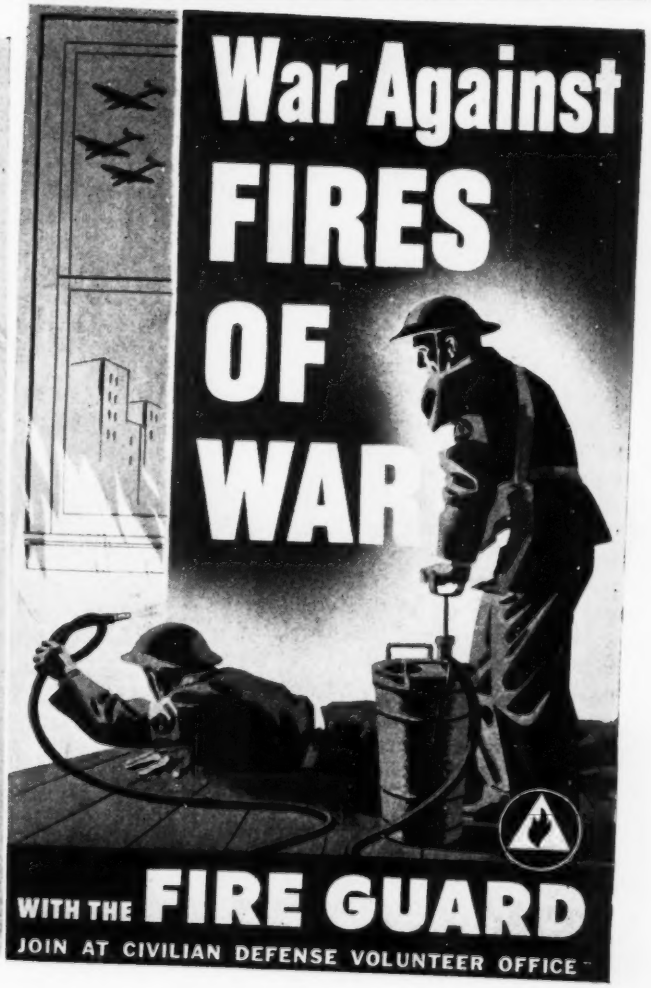
The pictures accompanying this article are selected from American and British sources developed to stimulate home-front morale, to tell the story of the citizen's share in the war. Materials can be obtained from the Office of Civilian Defense, the War Production Board, the Departments of Labor and Agriculture, the Office of War Information, and other agencies. City Halls, with these—and their own—resources, can make a significant contribution in the months ahead to raising morale and speeding Victory.

—The poster reproduced on this page is by the Office for Emergency Management. On the facing page: upper left, War Production Board; upper right, Office of War Information; lower left, Office of Facts and Figures; lower right, Office of Civilian Defense.

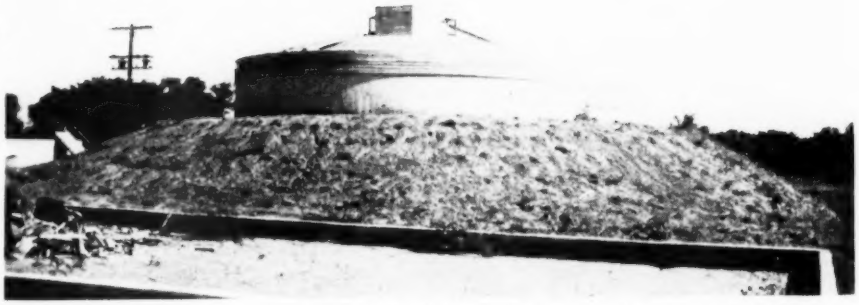
YOUR SCRAP
...brought it down
KEEP
SCRAPPING
IRON AND STEEL—RUBBER
ALL OTHER METALS—RAGS
MOVE ALL SCRAP NOW!

Work on a farm...
this Summer
JOIN THE U.S. CROP CORPS
SEE YOUR U.S. EMPLOYMENT SERVICE OR YOUR LOCAL COUNTY AGENT


"THIS WORLD CANNOT EXIST
HALF SLAVE AND HALF FREE"
WORK FOR FREEDOM!


War Against
FIRES
OF
WAR
WITH THE FIRE GUARD
JOIN AT CIVILIAN DEFENSE VOLUNTEER OFFICE

Pryor, Okla., Meets a Sewerage Emergency



How the sludge digestors look with their wartime concrete covers. Forming details may be seen at the upper right.

By **Rex Collins**
Consulting Engineer
Collins Engineering Co.,
McAlester, Okla.

THE city of Pryor found itself the center of activity for a large defense plant one morning in August 1941. Without previous warning, the Federal Government announced its intention and began preliminary construction of a plant estimated to cost $88,000,000 near this active little southwestern city.

Immediately it became clear to the city officials that considerable extension and expansion of the public utilities would be necessary. The mayor and councilmen met and vigorously decided what action to take. In a surprisingly short time, work started on the preparation of plans for the expansion.

Applications were filed with the Federal Works Agency, one for sewer extensions, outfall sewer, and sewage disposal plant improvements; and one for water distribution system expansion and changes, supply additions, and water filtration plant improvements. The water-works improvements are not described in this article, since that work is not yet completed.

Sewer Extensions

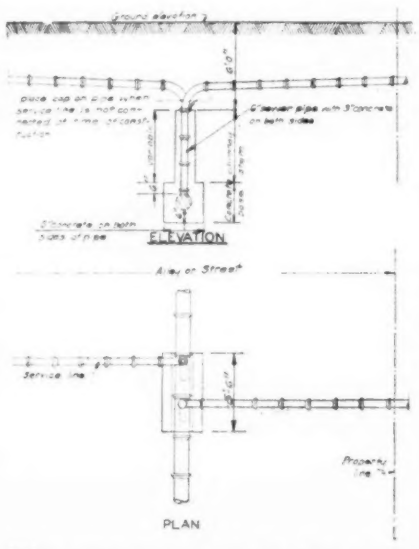
Sewer improvements consisted of approximately 35,000 lineal feet of additional sewer extensions to connect to all new housing, a new outfall sewer to the new federal housing project, and a new outfall sewer to the disposal plant site. The old outfall was small and heavily overloaded.

Most of the sewers placed were in 6-foot trenches. Some of the sewer mains, however, were in much deeper trenches, the maximum depth being approximately 16 feet. The rock in the city at some locations lay in ledges just at the flow line of the sewer or, in some instances, approximately 1 foot above it. Where at all possible, the excavation of rock was avoided. The rock encountered consisted of a very hard limestone formation and for this reason, most of the trench excavation was handled with a trench hoe.

A 6-inch wye with cap was provided for all lots. The location of the wye is shown on the plans which will be placed on file with the city clerk for future reference. For deep trench service a concrete chimney was constructed and the stem brought near the surface so that wyes could be easily located and connection made to the sewer.

Sewage-Treatment Plant

The sewage-treatment plant had to be completely rebuilt. The existing facilities consisted of a settling tank, two vertical turbine sewage pumps installed in a wet well, and a low rate trickling filter 90 feet in diameter and 7 foot media depth.



When mains are over 10 feet deep, service lines are connected in this way.

This plant site was below flood stage; however, since the filter was in place and the city owned the land, the improvements were simply added to the old site, with the new improvements made waterproof to keep out flood waters.

The plant as improved is designed for a population of 10,000 people at the assumed rate of 50 gallons of sewage per capita per day. The plant influent enters first through a flood by-pass manhole. This manhole contains a float chamber and valve that will cut off the plant flow when the area becomes flooded and thus by-pass the plant; otherwise the flow enters the control house from the manhole.

The control house is constructed of architectural concrete to blend with the remainder of the plant. The control house contains all of the mechanism necessary to operate the plant. The influent enters a Parshall flume with a recorder and an integrator to give the quantity of flow, in million gallons per day and gallons per minute, going through the plant at all times. It then passes through a screening mechanism controlled automatically by two float chambers and a mercoid switch. When obstructions build up a sufficient head above the screen, the float rises and turns on the screening mechanism, and another float will turn it off when the obstructions are removed. From the screen the influent enters a wet well and is pumped into

Built to serve a population of 10,000 based on 50 gallons of sewage per capita per day, this interesting little sewerage system discloses many resourceful elements in its design and construction. The existing trickling filter was reconditioned and its capacity increased by screening the filter media and discarding the smaller deleterious material. The rotary distributor was rebuilt largely by using scrap material from nearby oil wells. The sludge is digested in two tanks designed for either single or multi-digestion. Gas-tight concrete domes are provided on the tanks to eliminate the need for steel covers ruled out by war restrictions. In the service line extensions, each lot is connected by a novel wye arrangement with the location being carefully recorded on permanent city maps.

a primary clarifier by three pumps controlled by a mechanism that will cause them to operate in series according to the quantity of fluid in the wet well. The control house also contains two sludge pumps, a cast iron hot water boiler that burns sludge gas to heat the digestor, a well and pressure tank providing running water, toilet facilities for use of operator, a chlorinator, and laboratory equipment. The control house contains two floors. The basement floor is completely water-proofed to keep out flood waters. The operating floor is above flood stage.

The influent next enters the primary clarifier. The primary clarifier is built on a compact fill with the load spread uniformly over the entire bottom. It is circular, with center feed mechanism, also equipped with skimming mechanism and sludge collector mechanism. The skimmer empties into a scum box which in turn is connected with the sludge draw-off line to the suction line of the sludge pump.

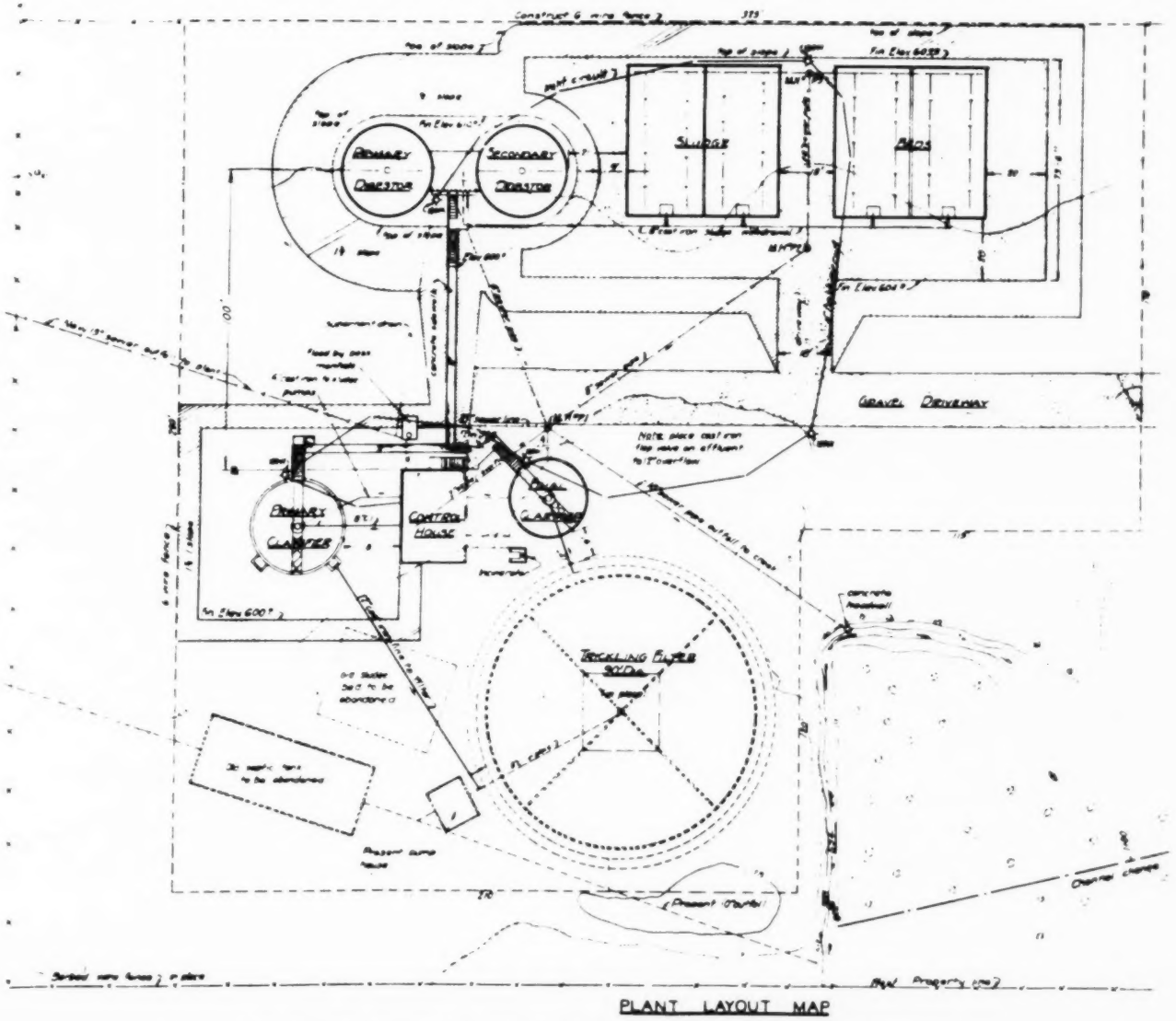
The effluent of the primary clarifier flows directly to the distributor of the trickling filter.

The center-line of the sewage distributor is located 5 feet below the effluent of the primary clarifier, in order to take care of the loss of head necessary for adequate reaction of the distributor. The top of the walls of the filter are barely above the flood stage elevation.

Trickling Filter Reconditioned

The trickling filter was heavily overloaded before the new plant improvements could relieve it.

An ingenious method was used to recondition the trickling filter. All of the filter media were removed and the



PLANT LAYOUT MAP

Line drawing showing the layout for Pryor's new Sewage-Treatment Plant.

smaller rock and deleterious material were discarded by screening. Because the smaller rock was removed, the result was to simply enlarge the void ratio of the media and facilitate drainage. The actual loss in volume of filter media was less than 10 per cent.

The arms of the rotary distributor were badly corroded. Because of the critical material involved in a new rotary distributor, it was necessary to recondition the old one and to use it. In order to handle the load anticipated, new distributor arms were made and installed. The contractor obtained some 6-inch oil field steel line and the new arms were made to fit the center column.

The effluent from the trickling filter then enters the secondary clarifier. The secondary clarifier is circular and is provided with a sludge-collectiong mechanism. The sludge is drawn off by a second sludge pump connected by a valved header with the pump receiving sludge from the primary clarifier and pumps into a common discharge line. The chlorinator applies chlorine in the center of the secondary clarifier.

Digester Covers

The plant is designed for separate sludge digestion. Two 30-foot diameter by 18-foot side depth sludge digesters were built. The design was made for either single or multistage digestion. The original design called for steel covers with stirring mechanism and floating cover on the secondary digester. WPB regulations and the critical need of steel for war made it necessary to change the design to concrete dome covers as an alternate.

This presented a problem for the engineer. The tanks were already built with anchor bolts and supernatant lines set before it was known that the steel covers could not be obtained. The weight of concrete covers, however, was considered ample to prevent any loss of gas, provided an adequate seal was used. The concrete domes were placed on top of the walls, with one layer of mastic premoulded filler mopped upon the top of the wall with hot asphalt. The anchor bolts were left in the wall, but painted heavily with asphalt. Pressure relief valves will keep the gas pressure low enough so that this joint will not leak. All of the plant area is enclosed with a wooden fence.

Personnel

The sewer work was carried on by Gaines Brothers, General Contractors, of Miami, Okla.; Mayor Thomas J. Harrison of Pryor represented the city; and Mr. R. D. Morgan was superintendent of public utilities. Mr. Sam Moore was resident engineer, and the author consulting engineer. L. H. Strock represented the Federal Works Agency.

Inventory of Major Equipment

Screening mechanisms and controls—The Dorr Co., New York

Digester pressure relief valves—Vapor Recovery Systems, Tulsa, Okla.

Parshall flume recorder and integrator—The Foxboro Co., Foxboro, Mass.

Wet well pumps—American Well Works, Aurora, Ill., (two original). Fairbanks Morse, Chicago, (one new)

Clarifiers—The Dorr Co., New York

Sludge pump—Barnes Dorrco, New York

Trickling filter distributor—American Well Works, Aurora, Ill.

Chlorinator—Wallace & Tiernan Co., Inc., Belleville, N. J.

There Will Always Be an England

TWO optimistic items of planning news from England during July:

On July 10 *The New York Times* carried a special dispatch from London regarding a 50-year plan for the rebuilding of the British capital, just released for public discussion by the London County Council. Substituting spaciousness for congestion, the carrying out of this notable example of metropolitan planning would involve at least 600,000 persons moving out of London, it is estimated. The proposals of the planners—John Henry Forshaw and Professor Patrick Abercrombie — envisage revolutionary changes in London's slum districts and the construction of modern neighborhood units with adequate facilities for recreation and community life. The plan suggests that a standard 4-acre park and recreation area for every 1,000 of the population should be adopted, not counting the so-called "green belt" of parks and commons fields that surround London on its outskirts.

As part of a scheme for increasing the open spaces of the city, the planners propose to develop some sections of the banks of the Thames into "river pleasaunces" and to enlarge the riverfront area open to the public from about 9 per cent to 30 per cent.

Optimistic item No. 2 is an invitation received by THE AMERICAN CITY to attend the Town and Country Planning Summer School, at the University of Birmingham, August 24-31. It is a significant proof of British courage and foresight that these annual meetings of planners, discontinued at the outbreak of war, are now being resumed. Determination to build better post-war communities is also evidenced in the recent setting up of a British Ministry of Town and Country Planning and the introduction in Parliament of important new legislation bearing on the future of urban and rural development.

Municipal Admission Taxes to Build Post-War Reserves

CITIES in the state of Washington will obtain an estimated $1,444,000 in revenue during the next year from municipal admission taxes, adopted earlier in the year after the state vacated the admission tax field by legislative action and gave municipalities the right to make such levies.

According to estimates of admissions tax returns, as reported by The American Municipal Association, a city with a population of 20,000 or more will collect about 75 cents per capita, or $120,000 a year, while places with less than 20,000 population may expect to collect approximately 50 cents per capita. Local conditions, however, may change expectations, and several war "boom" cities are collecting exceptionally high yields from their admission taxes.

Most of the Washington cities adopting ordinances to allow levying of admissions taxes do not need the extra revenue for current purposes but to build up reserve funds for post-war public works programs, the AMA said.

Wide Range of Post-War Planning by Small Municipalities

This is the eighth installment of the replies which THE AMERICAN CITY has been publishing since November last to an inquiry sent to mayors and city managers as to post-war planning by their respective municipalities. Starting with the larger cities, the questionnaire has gone successively to smaller places. In the present and preceding issue the replies are from municipalities in the 10,000-15,000 population range.

The questionnaire form, identical with that sent to the larger cities, asked the following questions:

1. *"Has your city begun to plan for post-war public works or other municipal improvements to be undertaken when materials and manpower are available?"*
2. *"If so, what are the principal types of projects contemplated in these plans?"*
3. *"By what departments of the municipal government are such plans being made?"*
4. *"Does your municipality have a planning commission? If so, what responsibilities and powers does that agency have as to post-war planning?"*
5. *"Is your municipality setting aside any reserve, in war bonds or otherwise, for post-war public works?"*

The small percentage of municipalities which answered "No" to question number 1 are not listed. The accompanying synopsis gives the answers to questions 2 to 5, with the name and title in each case of the official furnishing the information.

Fostoria, Ohio

C. B. SHUMAN, Mayor:
2. City hall; sewers
3. Service Safety Department
4. No planning commission
5. No

Fremont, Nebr.

JAMES R. HANSON, Mayor:
2. Municipal: schools and improvements; State: roads (bridge and transportation); agriculture (chemurgy)
3. Board of Public Works
4. No planning commission

Fremont, Ohio

A. L. WRIGLEY, Mayor:
2. Sewer construction; sewage disposal plant; sidewalks
3. Engineering Department
4. No planning commission
5. Yes

Gainesville, Fla.

J. B. MOBLEY, JR., City Manager:
2. Airport hangar; sewage-treatment plants; incinerator; additional sidewalks; street paving; storm and sanitary sewers; municipal recreational building; municipal swimming pool and park; police station and jail; central fire station; water mains, pumping station, water tank, and water-treatment plant; electric power plant extensions; new library
3. All departments concerned
4. Yes. The city Chamber of Commerce has appointed a Planning Commission to work with the City Commission and the City Manager
5. Yes, we have reserve funds for the utilities planned.

Glen Cove, N. Y.

WILLIAM H. SEAMAN, Mayor:
2. Street improvement; parking fields; sewer extensions
3. Department of Public Works
4. Yes. It works in cooperation with the Department of Public Works
5. No

Goshen, Ind.

FRANK EBERSOLL, Mayor:
2. Additions to light and water plant
3. Light and Water Department
4. No planning commission
5. Yes

Grand Junction, Colo.

BRUCE BROWNSON, City Manager:
2. Airport facilities; enlargement and improvements to water system
3. City Council; City Manager's Office; City Engineering Department
4. No planning commisison
5. Yes

Greenwood, S. C.

J. M. MARSHALL, Mayor & Acting City Manager:
2. New filter plants; sewer extention; curb, gutter, street and sidewalk paving
3. Water and Light Commission; Street Department
4. Yes
5. Yes, we already have reserve for sewer extension

Hanover, Pa.

C. A. ECKBERT, Borough Manager:
2. Street improvements; sewerage works and extensions
3. Borough Manager's Office
4. No planning commission
5. Yes

Harlingen, Texas

HUGH RAMSEY, Mayor:
2. Storm sewer; fire station; street paving; recreation facilities
3. Sewer plans completed, other projects being studied by City Commission, to be turned over to Planning Commission
4. Yes. Studies and recommends
5. Yes. $58,000 for storm sewers

Harrison, N. J.

JOSEPH A. GARRITY, Coordinator:
2. Vocation high school; high school stadium; playgrounds; completion of new sewer and water systems; street improvements; other smaller projects
3. Engineering, Street, and Water Departments, Board of Education, and Playground Commission
4. Not as yet
5. Yes. Town funds

Hawthorne, N. J.

G. V. GRILLO, Clerk:
2. Curbing; sidewalks; roads; drainage; sewerage
3. Department of Public Works
4. No planning commission
5. No, not as yet

Highland Park, Texas

RODERIC B. THOMAS, Town Engineer:
2. Street paving and improvement; sanitary and storm sewers
3. Engineering Department
4. No planning commission
5. Yes, both cash and bonds

Holland, Mich.

HENRY GEERLINGS, Mayor:
2. Community building; hospital addition; sewers; bandshell; park and airport improvement
3. Common Council; Street Department
4. Yes. Outlines a program
5. No

Hoquiam, Wash.

RALPH L. PHILBRICK, Mayor:
2. Road and street improvements; wharves and dike filling; garage; mausoleum
3. Street Department and Cemetery Board
4. No
5. Not as yet. We are paying off indebtedness

Hudson, N. Y.

EARL J. COLWELL, Mayor:
2. Relief sewers; highway work; water system improvements; possibly some recreational developments
3. Department of Public Works
4. No planning commission
5. No

Huntsville, Ala.

N. M. PAYNE, Clerk-Treasurer:
2. City park, including bathhouse for swimming pool; street improvements
3. Department of City Engineers
4. No
5. Yes

Huron, S. Dak.

J. S. TSCHETTER, Mayor:
2. Municipal auditorium; street paving and repair; airport improvement; water system improvement
3. City Board
4. No
5. No

Independence, Kans.

G. H. KRIENHAGEN, City Clerk:
2. Resurfacing street paving; water-works system improvement
3. Engineering Department
4. No planning commission
5. Yes. Have purchased some bonds for this purpose

Iron Mountain, Mich.

H. T. MCNEELY, City Engineer:
2. Street improvements; sidewalks; municipal garage and warehouse; storm sewers; water softening plant; street lighting
3. Street and Water Departments
4. No planning commission
5. No. Finances do not allow

Ironwood, Mich.

WILLIAM L. JOHNSON, City Manager:
2. Completion of sewage disposal plant; new firehall; bridge construction; extension of storm and sanitary sewers, gas and water pipes, and street program; band shell; recreation center development
3. Engineering Department
4. No planning commission
5. No. Curtailing expenditures to overcome yearly deficit

Johnstown, N. Y.

A. WANDS, City Clerk:
2. Pavements; storm-sewer drainage
3. City Engineer's Department
4. Yes. Approve and recommend projects to the Common Council
5. No

Kirkwood, Mo.

H. C. HOLZ, City Engineer:
2. Water plant and distribution system; sewage disposal plant enlargement; storm water sewers; street paving; street lighting; sidewalk improvements; park improvements
3. Engineering Department; Park Board
4. Yes. Advisory only
5. Funds for 50 per cent of planned improvements are now available

Laramie, Wyo.

D. B. WILLETT, City Manager:
2. Expansion and improvement of water and sewer systems
3. Superintendent of Public Works
4. Planning Commission authorized and will be appointed soon. Indefinite at present
5. Yes.

Latrobe, Pa.

R. H. HUMES, Burgess:
2. Community park and playground; civic center; community recreation depot
3. Municipal Recreation Committee; Finance Committee
4. Yes. Power to hire architect and playground engineer
5. No. We are reducing our bonded indebtedness, so we will be in position to borrow money at low interest

Lexington, N. C.

J. L. GORDON, City Manager:
2. Municipal hospital; street, water, and sewer improvements
3. Board of City Commissioners; City Utility Commission; City Manager's office
4. No planning commission
5. We hav already set aside $90,000 surplus, to which sum we are adding each year

Little Falls, N. Y.

R. D. AUSTIN, City Engineer:
2. Street paving; water-works improvements; sewers and culverts; central municipal garage and tool house; city hall auditorium; rebuilding city hall heating system; city cemetery; reconstruction of band stands; park and playground improvements; swimming pool
3. Board of Public Works
4. No planning commission
5. Not as yet

Lock Haven, Pa.

CHARLES E. HERR, Mayor:
2. New water system; highway improvements
3. City Engineer
4. Yes. It is not very active
5. Yes

Lodi, Calif.

J. F. BLAKELY, City Clerk:
2. Relocation and enlargement of sewage and industrial waste disposal plants; rebuilding of streets; betterments to water and electric plants
3. City Engineer and Public Utility Departments
4. Yes. At present none; most of the plans will be formulated under direction of the City Council
5. Yes

Logan, Utah

WILLIAM EVANS, JR., Mayor:
2. Addition to municipal electric plant; removal of electric pole lines to center of blocks; erection of emergency hospital; fire department equipment; administration building at airport; street improvement
3. All departments in cooperation with War Reserve Administration
4. No
5. Yes

Longview, Wash.

C. C. TIBBETTS, Mayor:
2. Municipal filter plant, sewers; street work, including bridges; drainage improvement
3. City Engineer and professional engineer
4. Yes. It works closely in conjunction with City Council
5. Yes

Lynwood, Calif.

JOHN A. BLAIN, Street and Water Superintendent:
2. Public park; street improvement; new fire house; water improvement; storm drain
3. Engineering Department
4. No planning commission
5. Yes.

Maplewood, Mo.

JOHN P. USHER, City Clerk:
2. Lighting system; city hall
3. Financial Department
4. No
5. No

Marinette, Wis.

ARNOLD H. SCHMITT, Mayor:
2. Public playgrounds and parks; street improvement; construction of curbs and gutters
3. Special committee of Council
4. Yes. Studies conditions and suggests projects to Council
5. No. Not in financial condition to do so

Martins Ferry, Ohio

LEE WOODS, Mayor:
2. Flood wall; street improvements; etc.
3. Engineering Department
4. No
5. No

Massena, N. Y.

WALTER D. CLARK, Street Commissioner:
2. Streets; sewers; garbage disposal
3. Street department
4. Yes. None
5. No

Maywood, Calif.

ISOBEL B. HOLLAR, City Clerk:
2. City park
3. City Council
4. No
5. Yes

McAlester, Okla.

C. A. BENTLEY, City Manager:
2. Enlargement of city water plant and extension of distribution lines; additions to sewage disposal plants; sewer extensions; repairing large drainage canal; city paving
3. City Manager
4. No
5. No. State laws do not permit

Medford, Ore.

FRANK H. ROGERS, City Superintendent:
2. Sewers; paving; enlargement to disposal plant
3. Special committee
4. Yes. None
5. Yes.

Mineola, N. Y.

DWIGHT G. HUNT, Clerk and Treasurer:
2. Concrete curb and gutter; sanitary sewer extension; water main extensions; elevated tank; auxiliary pumping equipment; pumping station; improvements to incinerator; park improvements; oiling and sanding streets; cut back and blue stone on streets; renovation of municipal building; new fire house; painting water tank; Highway Department building
3. Highway, Sewer, Water, Incinerator, Park, Public Buildings, Fire, and Water Departments
4. Yes. None
5. No

Mitchell, S. D.

WALTER F. DIXON, Mayor:
2. Oiling program; curbs and gutters; addidition to filtration plant
3. Engineering Department
4. No. Chamber of Commerce handles same
5. No. Will have to be bond issue

Monrovia, Calif.

GEORGE H. WILLIAMS, Mayor:
2. Sewage disposal; sewer extension; new city hall; flood control and debris basins; pumping plants; storage reservoirs and extensions
3. City Council
4. Yes. Under City Council
5. Yes

Monterey, Calif.

B. J. PARDEE, City Manager:
2. Waterfront development; parks; highways; etc.
3. City Planning Department and City Engineer
4. Yes. Developed a master plan for community
5. Yes

Moultrie, Ga.

G. A. SHAVER, Clerk-Manager:
2. Water; light and power; streets; sanitation; library; auditorium; drainage
3. Executive and Engineering Departments
4. No
5. Yes, cash reserve

Mt. Clemens, Mich.

E. L. PETTINGILL, City Engineer:
2. Sewage disposal plant; recreation and public buildings
3. City Engineer
4. No

Needham, Mass.

W. A. HACK, Clerk, Board of Selectmen:
2. Pumping station; street widening; public works garage; fire station
3. All departments concerned.
4. Yes. Needham Planning Board issued its second annual report (1942) on "Long Range Planning," which is a survey of needed capital expenditures of the various departments of the town for the succeeding five years
5. Yes

Neptune, N. J.

JOHN W. KNOX, Clerk:
2. Sanitary sewer; disposal plant; storm drains; incinerator; street improvement
3. Street and Health Departments
4. No planning commission
5. No.

New Iberia, La.

W. LOURD, Mayor:
2. City-wide street improvement and various other projects of lesser importance
3. Mayor and Board of Trustees
4. No. We do have a parish-wide planning board of which the Mayor is a member. Said board has no powers other than advisory
5. No.

Newton, Kansas

W. O. CUTHBERTSON, City Manager:
2. Paving; storm sewers; drainage projects; water-works improvements; park improvements
3. Planning Commission and City Engineer
4. Yes. Advisory
5. No provision in state laws, except transfer of waters reserve funds

(To be continued next month)

New York's Public Housing Not All Tenements

A typical group of houses in the Edwin Markham Project

Staten Island Project Has 360 Families in 2-Story Houses— Other Low-Density Projects

By MAXWELL H. TRETTER
Assistant to the Chairman, New York City Housing Authority

EDWIN MARKHAM HOUSES, in West New Brighton, Staten Island, looks like a collection of small private homes, painted in shades of yellow, blue-green and brick-red, the kind of colors that were used in Colonial days and are seen on homes all along the Hudson Valley. Built and operated by the New York City Housing Authority with the aid of federal funds, these 2-story row houses have apartments for 360 families. Today, these are being rented to war workers from Staten Island, Bayonne and Elizabeth plants which have been certified by the Federal Public Housing Authority. After the war, the apartments will provide decent homes for low-income slum dwellers from the slums.

"Edwin Markham Houses were built because of the importance of housing in war production. Defense housing aims to minimize the fatigue of long travel, or worry over an inadequate or inconveniently located home." This is how Edmond B. Butler, chairman of the New York City Housing Authority, characterizes Edwin Markham Houses.

The total gross area of the project site, including streets that were closed, was 631,252 square feet. After conveying to the City the land that it required for street widenings along the borders of the project, the net area remaining is 558,212 square feet, or 12.81 acres.

The cost of the gross area of the site, including interest on the awards in the condemnation proceeding, but excluding appraisers' fees and site clearance costs, was $420,621, or 67 cents a square foot. If the areas of the closed streets are excluded from the calculation, the cost is 76 cents a square foot.

Only a quarter of the land is covered by buildings. Half a thousand trees—elms, oaks, maples for shade, flowering

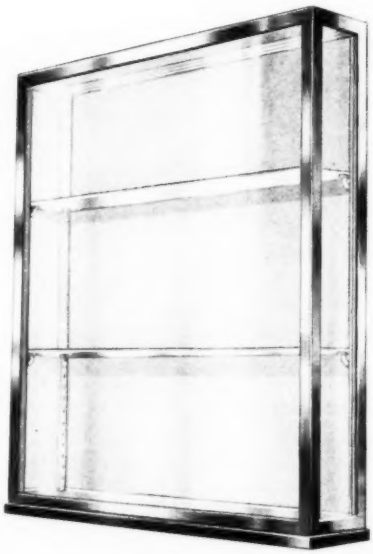
"Time-Tight"
EXHIBIT CASES

★ WITH MICHAELS INNERLOCKING FRAMES ★

Because of their distinctive appearance and unusual constructional features, Michaels Time-Tight exhibit cases are becoming increasingly popular. Time-Tight Innerlocking Frames, exclusive with Michaels, are a comparatively recent development, and designed to meet fully the requirements of all users of exhibit cases.

Time-Tight cases are available in various types and sizes. There are Table Cases, Wall Cases, Aisle Cases, Suspended Cases, Recessed Cases. A few are shown below. You'll be interested in all the details of these unusually fine and practical exhibit cases. Descriptive folder giving complete information, will be sent on request.

Type No. 120. *Top sloped lids, having two point lock and lid supports.*



Type No. 200. *Suspended case. Frost panel hinged. Shelves adjustable every inch. Wood or metal supporting shelf. Removable or hinged panels furnished as desired. Dimensions should be determined by available wall space and type of exhibits to be used.*

Type No. 130. *Front panel hinged. Six glass shelves adjustable every inch. Vehisote back. Removable panels may be substituted for hinged panels if desirable.*

below Type No. 170. *End panels hinged. Removable panels may be substituted for hinged panels if you prefer.*

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hawthornes and birches, apple and walnut trees grace the thirteen-acre site. There are front lawns and flowering shrubs. All apartments but a few of 3 rooms have their own back yards, which are being used as victory gardens. The gardening tool collection of the management serves as a "lending library" from which gardeners may borrow tools without charge.

Each apartment is designed as background for any type furniture a family may have. The floors are hardwood, the walls a light buff, and pine paneling covers the stairways to the second floors. Kitchens and bathrooms have complete modern equipment. Each family has its own private entrance.

Community Facilities

A community building will provide for tenant recreational activities and will contain a nursery. The roadways and streets of the project are so planned that there is no through traffic. Children are safe on the grounds, which contain a large play area. There are benches where adults can take their leisure. The coal-fired boilers and other heating equipment are in a separate two-story building which harmonizes in design with the rest of the project.

Edwin Markham Houses was built at a cost (including land) of $2,228,137. Apartments range from 3 to 6 rooms, with maximum rentals of $39 to $50 per month, including steam heat, hot water, gas and electricity. The architects were DeYoung and Moscowitz, and Frederick Mathesius. New zoning arrangements protect the neighborhood from possible future use that might be detrimental to the project.

The net density of Edwin Markham Houses is 100.3 persons per acre. Other low-density public housing projects in New York City are South Jamaica Houses, with 160.8 persons per acre in 3- and 4-story buildings, and Clason Point Houses, consisting of 2-story buildings housing 94 persons per acre.

Town Planning—2500 B. C.—1800 A. D.

IN preparation for a series of Urban Planning Conferences concluded last month at Evergreen House, Baltimore, Md., under the chairmanship of Mrs. John Work Garrett and with Michael Rosenauer as Conference Director, a comprehensive exhibit of "Town Planning to 1800" was assembled by Librarian Elizabeth Baer of the Evergreen Library. Books and maps from the notable Evergreen collection were supplemented by exhibits from the Walters Art Gallery and the Maryland Historical Society.

As the mimeographed catalogue of the exhibit points out:

"The history of town planning is very similar throughout the countries of Europe and the World during the centuries, with the same fundamental characteristics and ideals. The cities were planned predominantly for military security, at first, yet other determining factors in choosing their locations were ease of transportation, water supply, healthy site and sufficient tillable ground to feed the inhabitants.

"There were three general types of cities laid out on preconceived plans: the *square* or *rectangular* type, with straight streets intersecting at right angles; the *radial* type, with streets running in fan shape pattern from a central point; or the *combination* of both types.

"There is evidence, in the light of recent archaeological discoveries, that some towns had a plan back as far as 2500 B. C. Excavations have shown that Kahun in Egypt was laid out in rectangular form between 3000 and 2500 B. C. for the workers on the Illahun Pyramid. The glories of Babylon are preserved for us in the works of Herodotus, writing in 450 B. C. . . .

Aristotle and Ezekiel

From the very earliest times there have been theoretical plans for ideal towns, proposed with no particular location in view. Writing in the 4th Century B. C., Aristotle says of city plans:

"The arrangement of the private dwellings is thought to be more agreeable and more convenient for general purposes if they are laid out in straight streets, after the modern fashion, that is, the one introduced by Hippodamus; but it is more suitable for security in war if it is on the contrary plan, as cities used to be in ancient times, for that arrangement is difficult for foreign troops to enter and to find their way about in when attacking. Hence it is well to combine the advantages of both plans . . . and not to lay out the whole city in straight streets, but only certain parts and districts, for in this way it will combine security with beauty. (Politics VII. 10.)"

The catalogue credits the prophet Ezekiel with being one of the earliest zoners:

"In 597 B. C., Nebuchadnezzar, King of Babylon, carried the people of Jerusalem into captivity. Among them was Ezekiel the prophet. In his Prophesies he describes the 'Temple,' giving the dimensions and the division of the surrounding territory into 'Zones' for the tribes of Israel."

Many ancient and medieval town plans and maps were shown in the exhibit, and more modern plans (up to the 18th century) from both the eastern and western hemispheres.

Baltimore in 1776

The catalogue concludes with a pen picture of the humble beginnings from which the present great city of Baltimore has grown. During the Revolutionary War, it will be recalled, the Continental Congress met in Baltimore from December 20, 1776 to March 4, 1777. According to a letter written by a member of Congress, William Hooper, to Robert Morris on December 28, 1776, the Baltimore streets had little to boast of at that time. Wrote Congressman Hooper:

"I earnestly wish that the Congress could return to Philadelphia. . . . This dirty, boggy hole beggars all description. We are obliged except when the weather paves the streets, to go to Congress on Horseback, the way is so miry that carriages almost stall in the sides of them. When the Devil proffered our Saviour the Kingdoms of the World, he surely placed his thumb on this delectable spot and reserved it to himself for his own peculiar seat and inheritance. . . ."

League Secretaries in Armed Forces

THE American Municipal Association reports that up to June 15 eight secretaries of state leagues of municipalities have entered the armed services of the nation. These secretaries and their acting successors are:

Arkansas—Lt. Colonel William P. Hopson, Army Air Corps; Acting Secretary, Glenn G. Zimmerman.

Maine—Ensign Philip Habermann, U.S.N.R.; Acting Secretary, Ernest Johnson.

New Hampshire—Lt. (j.g.) Lashley Harvey, U.S.N.R.; Acting Secretary, Dr. Norman Alexander.

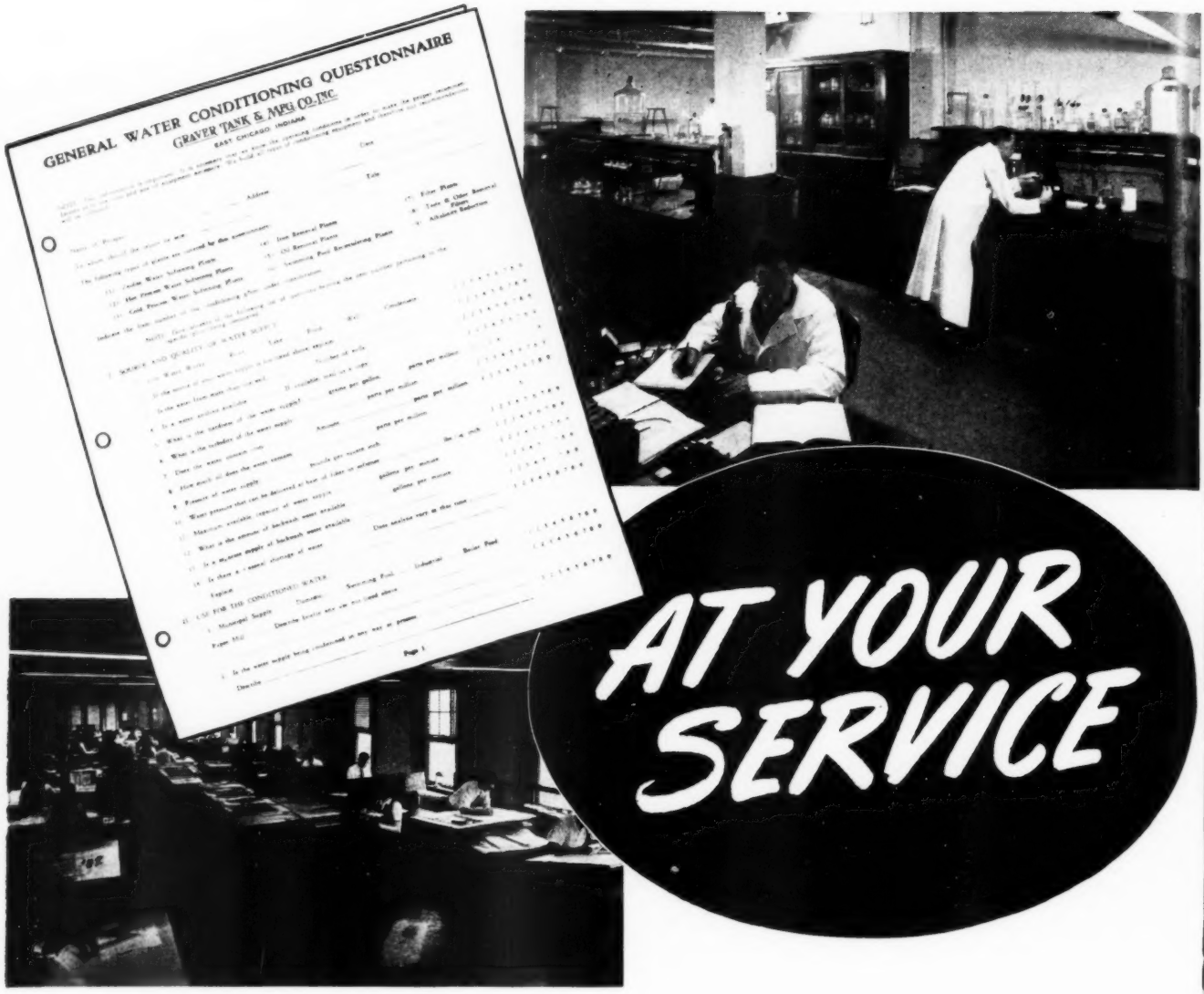
North Carolina—Lt. Patrick Healy, U.S.N.R.; Acting Secretary, Mrs. Davetta L. Steed.

Oregon—Lt. Hal Wyatt, U. S. Army; Acting Secretary, Howard R. Ennor.

South Dakota—Capt. A. E. Mead, U. S. Marine Corps; Executive Secretary, S. S. Shaw.

Tennessee—Lt. W. H. Newell, U.S.N.R.; President (handling work of League), Don B. Campbell.

Utah—Sergeant Tom McCoy, U. S. Army; Secretary, Miss Jo Turner.



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Accounting for Expenditures in Pensacola, Florida

By CHARLES H. WALKER
Assistant City Clerk-Comptroller

IN the Council-Manager city of Pensacola, Fla., finances, taxation, and the ordinary city-clerk activities are the responsibility of the Department of Finance, Taxation, and City Clerk, subdivided into Division of Finance and City Clerk, and Division of Taxation. At the head of the Division of Finance and City Clerk is the city clerk-comptroller who acts also as city treasurer. He is assisted by three other employees, namely—an assistant city clerk-comptroller, a senior clerk, and a junior clerk machine operator. The equipment consists of a Burroughs Budgetary Accounting Machine, which is used for all the general accounting and payroll work, three adding machines, three typewriters, and one F. & E. electric check protector.

During a year, 4,500 warrants for all funds and special accounts and 8,500 payroll checks are issued, and approximately $1,000,000 is received, accounted for, banked, and then paid out. Theoretically, the receiving and paying activities should be exercised by separate offices, but with the high type of personnel employed, the close supervision of the work, and the use of quarterly audits, considerable efficiency and savings are obtained by having a joint office.

Principles

In setting up its accounting system for expenditures, the city has endeavored to adhere to two principles: (1) provide prompt, accurate, and uniform accounting for all expenditures, and (2) provide records that include all necessary information properly cross-indexed for both current and future use. The methods that are being used to accomplish these two purposes are: (1) proper and adequate budgeting, (2) uniform classification of accounts recommended by the National Committee on Municipal Accounting of the Municipal Finance Officers Association, (3) daily posting, and (4) proper filing with complete cross-index references.

A modified accrual basis is followed, revenues being considered as such when money is received while expenditures include amounts paid or incurred. The city uses the following funds: (1) general fund, (2) water fund, (3) interest and sinking fund, (4) advertising fund (to advertise the advantages of the city), (5) utility tax fund (to account for special taxes on utilities which taxes are used to finance part of street maintenance), (6) bond issues fund (handles bond proceeds, not the payment of bonds), and (7) industrial facilities fund (used to assist in the acquisition of sites for new industries). In addition, seven temporary or special accounts are maintained relating to revolving, bond, special assessment, or trust funds. Entries originate in books of original entry consisting of: (1) cash receipts journal, (2) a cash disbursements journal, (3) an encumbrance journal, and (4) journal vouchers. Each of these journals, except the cash receipts journal, consists of loose-leaf, pre-numbered, size 8½ x 11 inch sheets, punched at the top for filing. Each journal sheet has provision for postings to the subsidiary ledgers and the general ledger which enables the operator to post much faster and also provides greater ease in tracing a transaction from one ledger to the other. In the cash disbursements journal, separate sheets are used daily for each fund and are filed separately by funds. No posting is made to the accounts except from one of these journals. Postings are made daily.

Before an expenditure may be made, proper authorization must be given by the city council through passage of the annual appropriation ordinance and subsequent amendments thereto. The expenditures are for (1) personal services, (2) purchase of materials, and (3) other expenditures, including contractual services and debt service.

Payrolls

Employees are paid semi-monthly during the middle and at the end of the month. Each division head presents a time sheet to the office of the city clerk-comptroller four days before pay day listing the employees under his supervision and giving the number of days worked and the rate of pay. Inasmuch as the city clerk-comptroller is also secretary of the civil-service board, the time sheets are assembled by him and sent to the Director of the Department of Civil Service for certification. Then the time sheets are extended, deductions indicated thereon, and turned over to the machine operator to draw the payrolls. It has been found that greater accuracy is obtained by placing the deductions on the time sheets than by having the operator make the deductions direct from the information sheets. The payroll checks are drawn on a separate bank account called the Payroll Account.

The payroll checks used are stub checks with spot carbon on the back of each stub. The payroll check, the employe's record of earnings, and the payroll register are made at the same time.

Purchases

A purchase-order system based on an approved departmental requisition is in use. When a department head finds that he is in need of an item, he makes out a requisition in the name of the vendor who has offered the best price. He lists on this requisition the articles together with the price, sending the original to the office of the city clerk-comptroller and retaining the duplicate in his book. In the city clerk-comptroller's office extensions are verified and the requisition either approved or disapproved as to the availability of an appropriation to cover the item desired. The sufficiency of cash to cover the expenditures is determined by comparing the total receipts with the total appropriations. After approval as to appropriation balance, the requisition goes to the city manager for approval as to propriety of purchase. If he disapproves the request, the department head is notified. If the requisition is approved, it goes to the typist for typing the formal purchase order. The order is made out in quintuplicate, the first copy going to the vendor, the second and third to the clerk-comptroller's office (one copy for checking with the invoice and receiving record and one for encumbering), and the fourth and fifth to the department head (one copy for his files and the other for certifying to the comptroller that the materials ordered have been received and that the prices are correct).

After the invoice is received, it is in turn attached to the second copy of the purchase order. There is thus

In re: Fittings

Tar-dipping a large cast iron fitting, drawn by Hugh Ferriss.

Today, the design and manufacture of standard and special cast iron fittings for water, gas and sewage lines is a specialized art in the modern pipe foundry. In fact, we operate a specialized plant, recently modernized and enlarged, for the manufacture of fittings. Progress in the art has been considerable as a result of years of product research, conducted independently in our laboratories as well as cooperatively with various engineering groups. If you have a problem in pipe design and fittings our technical staff is at your service.

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built up in the clerk-comptroller's office an authority for making a payment, consisting of the second copy of the purchase order, the departmental requisition, the material receiving record and the invoice. After the invoice is audited and found correct, it is placed in an alphabetical file by funds and paid in the following month unless a discount date dictates earlier payment.

Making Disbursements

The check used in all funds for all expenditures is a regular voucher check or warrant, in triplicate with one-time carbon and headed at the bottom for advantageous insertion in the machine. Possibly it would be cheaper to insert the carbons in the check as it is drawn, but our experience has shown that *the labor saved is well worth the cost of the one-time carbon.* The check is in two parts, the bottom portion being the remittance advice and the upper portion being the check itself, with a perforation between the two parts so that the vendor may retain the remittance advice for his use.

The original check goes to the vendor. The first carbon is for the numerical file and is filed with the purchase orders, invoices, and various supporting data in a file jacket by funds. When the cancelled check is returned by the bank, it is also placed in this jacket. The second carbon copy is used as the posting medium and is then placed in the alphabetical file which provides a cross-index on all disbursements very quickly and readily. All second carbon copies of voucher checks from all funds are thus placed in this composite file. This file enables the clerk-comptroller's office to determine at a glance each and every payment that has been made to any particular payee at any time during the year. Inasmuch as the purchase order numbers and invoice numbers appear on the remittance advice portion of the voucher, a ready cross-index to the numerical file of purchase orders is available.

Posting Expenditures

The first step in posting expenditures is to consolidate on the cash disbursements journal, the posting information. This journal is in two parts —the first for posting to the general ledger and the second for posting to the subsidiary ledger. The general ledger section provides the information for crediting cash and debiting appropriation expenditures and other accounts affected. These postings are in total for the day. The subsidiary portion of the journal is prepared next. The warrants are sorted according to the divisions to which they are posted and a list is made for the total postings to each division. The total of each list is entered in its proper place in the journal. The totals entered to the divisions must equal the amount entered in the line for the posting to the appropriation expenditure control in the general ledger. Thus before any posting is done to either the general ledger or the subsidiary ledger a prelist together with the cash disbursements journal are prepared and given to the machine operator with the actual warrants to be posted.

In similar manner, the commitments journal sheet is prepared. The commitments (third copy of the purchase order) are arranged by divisions and a prelist is made which is then placed in the proper place on the journal sheet preparatory to posting to the ledgers.

The general ledger sheets are the regular three column type showing debit, credit, and balance. Postings in the "credit" column of the ledger sheet are printed in red. At the time these sheets are posted, postings are also made by means of carbon paper to a general ledger journal which carries the same information as the ledger sheet but has in addition a pick-up column on the left and right-hand sides of the sheet. Proof of the accuracy of the postings is secured by means of the general ledger journal, which, if all postings have been posted to the proper columns, will show a "zero" balance.

In the appropriation expenditure ledger, the accounts are classified (1) as current expenses and (2) capital outlay.

Postings to the subsidiary ledger are also balanced to a prelist that is attached to the cash disbursements journal. The total of the postings obtained when proving a respective division will be the same as the amount listed on the subsidiary section of the cash disbursements journal for the same division.

Reports and Audits

In order to acquaint the city council, the city manager, and the citizens with financial operations, a monthly report is prepared by the clerk-comptroller's office before the seventh of each month. This report shows estimated and actual receipts; expenditures, appropriations, and unencumbered balances; receipts, disbursements, and balances for each fund and special account; and statements of changes in indebtedness.

All receipts are audited as they come into the office of the treasurer. This involves testing the accuracy of the work performed by persons charged with receiving money and also making certain that all monies received for the city are properly channeled into the proper account. This process of internal audit is a daily procedure that is carried on as part of the normal function of the Comptroller's office. All disbursements are pre-audited before they are made.

The accounts are audited quarterly by an independent certified public accountant. The quarterly audit provides citizens and officials with a more current verification of the financial transactions of the city. Such audit also enables the auditor to prepare his yearly report, which is the audit for the fourth quarter of the fiscal year, much more quickly than would be possible if the audit were made only at the end of the year.

From a bulletin published by the Municipal Finance Officers Association, Chicago, Ill.

Rent Receiverships

THERE was a time when, from the beginning of a tax foreclosure until the delivery of the referee's deed, the owner could continue to collect rents. This was referred to as "milking" the property, because the owner took all, paid no taxes and left the city holding the bag. Frequently there was a long delay, all to the benefit of the owner.

Buffalo proceeded to put a law through the Legislature authorizing the appointment of the City Comptroller as Receiver of Rents in any tax foreclosure where the income from rents justifies applying to the Court. Now, we collect the rents, and not the owner. Furthermore, the Comptroller as Receiver makes incidental repairs, even during the pendency of the action, and if major repairs are required he can obtain a Court order approving same.

From October 26, 1942 to June 30, 1943 rents billed by the receiver totaled $5,630. Collections were $5,598, and expenditures for repairs $880.

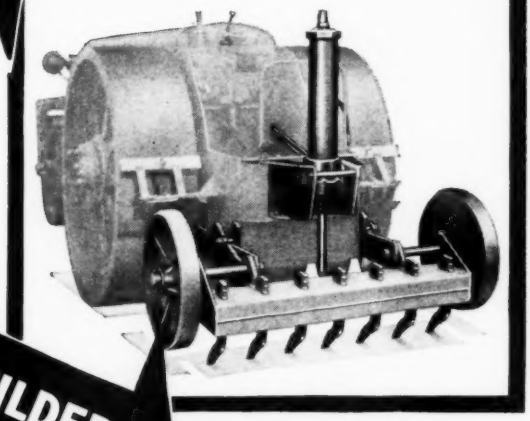
It must be remembered that the money expended for repairs really represents gain to the city, because the city would have to make them at its own expense after acquisition of title. Under the system in use, the repairs are made when needed, in many cases long before title vests in the city.

The plan has worked so well and so profitably that one wonders why it was not used long ago.

FRANK M. DAVIS,
Comptroller, City of Buffalo, N. Y.

AMERICA'S NEWEST ROLLER

BY AMERICA'S FIRST BUILDER OF MOTOR ROLLERS . . .



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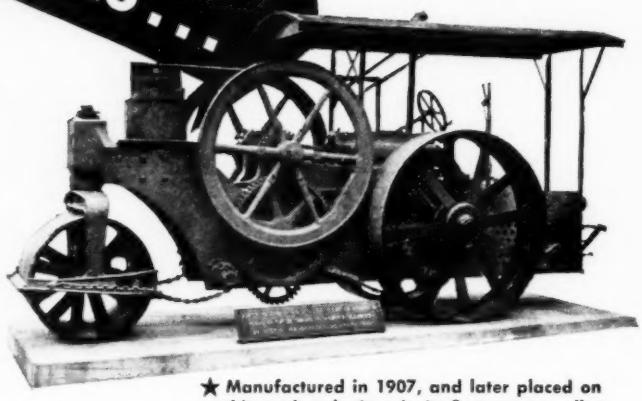

★ Manufactured in 1907, and later placed on this pedestal, America's first motor roller has now gone to war in the form of scrap.

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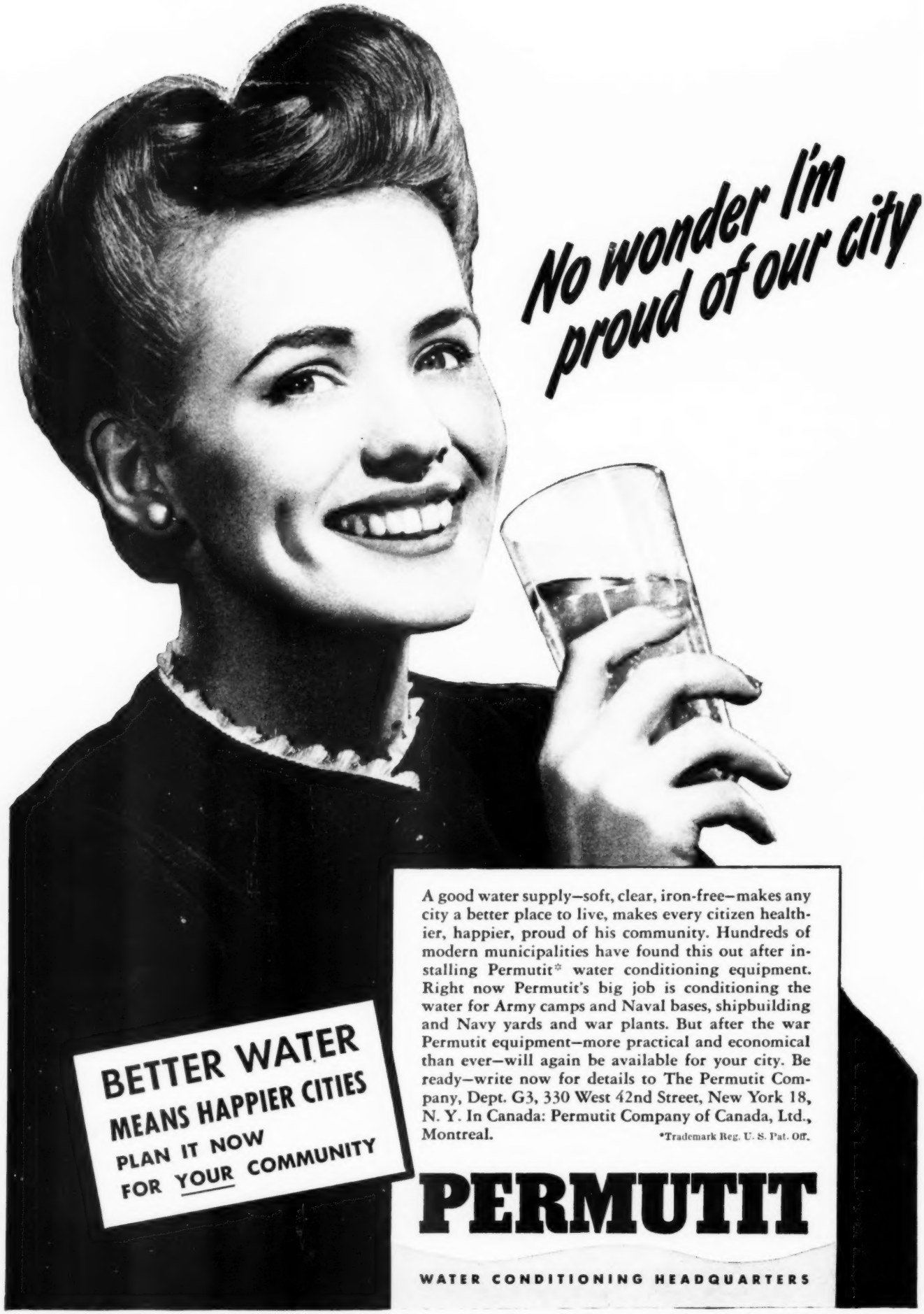
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About . . .

Kitchen-Ground Garbage

What Can Be Done, Short of New Construction, to Compensate for the Garbage Load on a Sewage-Treatment Plant

By HENRY W. TAYLOR

IN the last issue, we discussed the problems arising in a sewage-treatment plant by the addition of kitchen-ground garbage to the domestic sewage. This article will call attention to a few factors which may well be observed in the adaption of the plant facilities to this new load.

During the critical stage when the addition of kitchen-ground garbage is beginning to tax the existing sludge tank capacity, a little pre-settling of sludge liquor will greatly benefit the plant operation. This is particularly true in case of single-stage digestion. The garbage element in the sludge will accelerate digestive activity, increase gas production, and cause an additional agitation in the first stage of digestion, producing a black liquor loaded with sludge floc. However, in the case of primary digestion, if the sludge liquor is allowed to settle, the supernatant takes on a light straw color, much less heavily loaded with suspended solids. The settled primary liquor should then be drawn off gradually over a 24-hour period, thus eliminating possibility of heavy shock BOD loads.

The initial load thrust on a sewage-treatment plant by the kitchen grinding of garbage produces a demand for adjustments in operation. During the transition period when this load is beginning to assert itself, the operator can make certain changes, short of adding new units, that will still maintain the quality of the effluent. These expedients include settlement of sludge liquor, more frequent sludge withdrawal from the digestion tanks, and aeration.

Sludge Storage

The first effect on an existing primary sludge digestion tank will be a reduction of storage capacity. This depletion will be caused by the fact there is more sludge to digest. To alleviate this, the operator will be required to discharge the digested sludge to the beds more frequently and in smaller doses. It will also mean that digested sludge must be discharged to the drying beds during the winter months when previously it could be stored in the digestion tank.

Drying Beds

This situation may also affect the design and capacity of the sludge drying beds. Glass coverage, in many cases, would supply the answer to the problem during the transition period when an additional sludge digestion tank might not yet be warranted.

Settling Tank Effluent

The settling tank effluent also will be affected by additional organic matter in solution and suspension. The BOD will be increased to a certain degree, although, as has already been pointed out, this BOD increment is not of the more stubborn variety. In some cases, the curative capacity of the stream, receiving the effluent from a primary treatment plant, has not been exhausted and the stream can handle this additional load. If the situation may require that the treatment plant offset the grosser percentage of this additional load prior to discharge into the stream, post-aeration can be used, since this BOD increment is of the more readily oxydized type. Consideration should be given, in some cases, to the use of a short period of secondary settlement to intercept a secondary coagulation subsequent to primary settlement and post-aeration. With the typical domestic sewages, secondary coagulation and settlement have been found to be effective and of unexpected proportions, requiring frequent removal from the secondary tanks. The period of detention may be comparatively short, about one-half hour, and the sludge is of a more "granular" type than that from the primary tank. Post-aeration apparently can be more violent than pre-aeration, without the risk of breaking up coagulated particles and thus interfering with settlement of the larger particles.

Aerate Final Effluent

In the case of secondary treatment, aeration between primary and secondary treatment should be considered. However, the capacity of the existing secondary treatment is often not exhausted prior to the introduction of ground garbage. The added load of ground garbage may hasten the necessity for plant enlargement or additional units, reserved for increased population, and still not require during the critical transition period an actual physical plant increase.

It must also be remembered that the ground-garbage load has its seasonal variation, reaching a peak in August, September, or October and at a time when treatment problems can be solved without the added interference of winter weather.

Study Individual cases

In closing this necessarily brief discussion, it is important to add that each case presents problems of its own, and warrants solutions adopted to the special case. These solutions must be based on a knowledge of the added load characteristics, and expedients can be introduced in operation and construction to counteract these characteristics, especially in the transition period when the percentage of kitchen grinding of garbage is low and its future development can hardly be estimated.

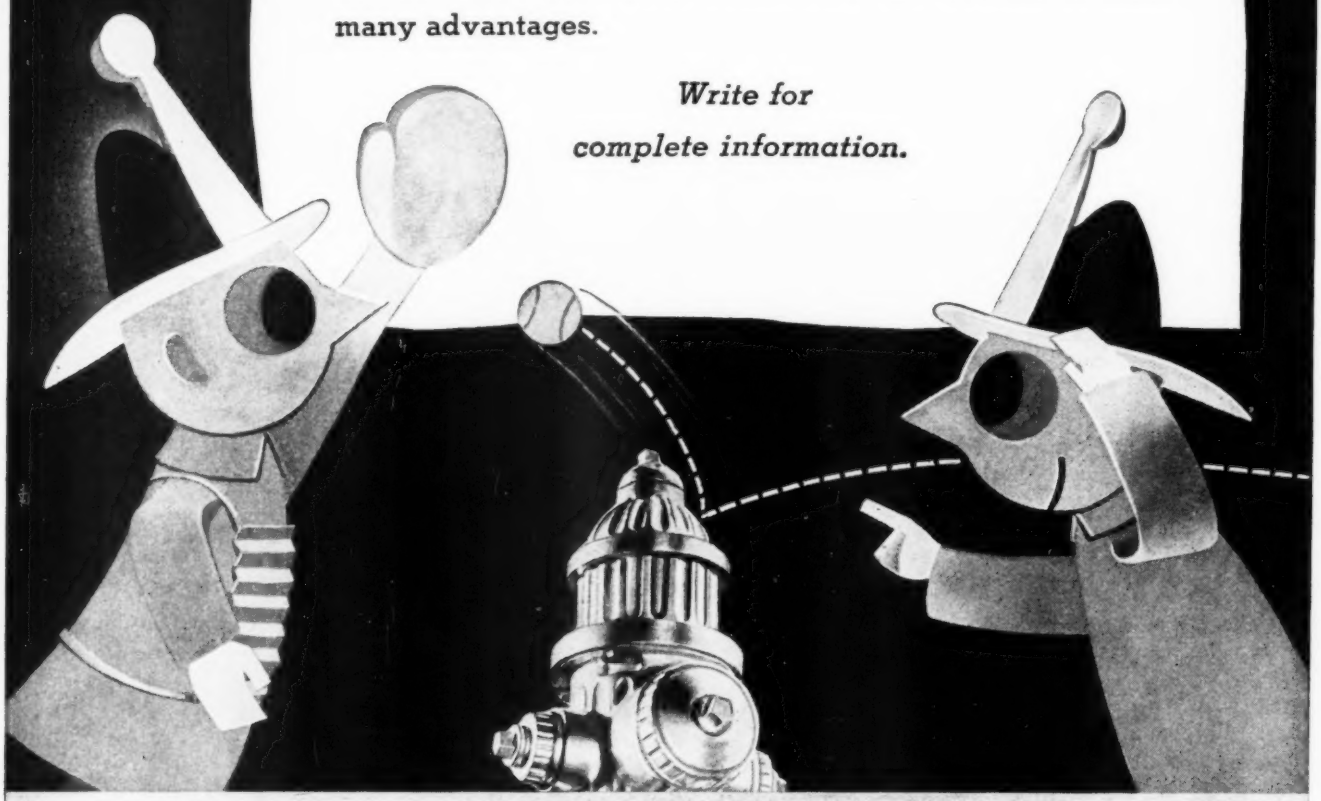
It always is possible that the trend towards kitchen grinders will be only temporary. The transition must, in any event, be watched carefully.

High-rate recirculating filters, their advantages and limitations in the sewage-treatment field, will be discussed on this page in September.

WHEN A MATHEWS TAKES A HIT COMPLICATIONS ARE OUT . . . !

Mathews Hydrants stand up under easy hits like no other hydrant team. There's no sacrificing of strength—no weak point to take the blow. If it's a smashing home run wallop that no hydrant can take, you simply send in a complete new barrel to substitute. Hit and run plays are out, too, because any car that hits a Mathews hard enough to snap it off stays around long enough to pay the bill. Mathews Hydrants lead the league in all-around performance. Give your community the benefit of their many advantages.

Write for complete information.



MATHEWS HYDRANTS

400 CHESTNUT STREET, PHILADELPHIA, PA.

ESTABLISHED IN 1803

Made by R D WOOD Company

MANUFACTURERS OF SAND SPUN PIPE (CENTRIFUGALLY CAST IN SAND MOLDS) AND R. D. WOOD GATE VALVES

Punching Out Electrical Fires with Carbon Dioxide

SHOULD the electrical equipment in many of the 2,400 municipal power plants and distribution systems be protected by carbon dioxide? How often do short circuits and fires occur in such machinery? The fact that you may never have had such a fire does not promise continued immunity.

Most municipal electric plants are covered by fire insurance. What cannot be thus covered is continuity of electric service. An electric fire in a generator or transformer winding is a particularly mean fire. While spray or fog has been effective, there is always hesitancy in employing water on electrical equipment. A carbon-dioxide discharge is an effective means of promptly extinguishing such a fire. Private power companies have long used this method. It consists of from one to many cylinders of CO_2 gas, with piping and discharge nozzles permanently directed at the hazard.

One of the earlier installations, in the Long Beach steam plant No. 2 of the Southern California Edison Company in 1926, consists of three 16-cylinder systems for the protection of three large generators, and a 4-cylinder system for auxiliary generator protection. In the same year, a 10-cylinder system was installed in the Pine Avenue substation of this company to protect a basement, transformer, and switch room. Other installations during the next four years brought this company's CO_2 protection to 18 systems, totaling several hundred cylinders. Meanwhile other Pacific Coast electric power systems installed carbon-dioxide protection. This pioneering work was recognized in the East in 1933, when the Philadelphia Electric Company put a 4-cylinder system in its Chestnut Hill substation to protect four 2,500-kva air-blast transformers.

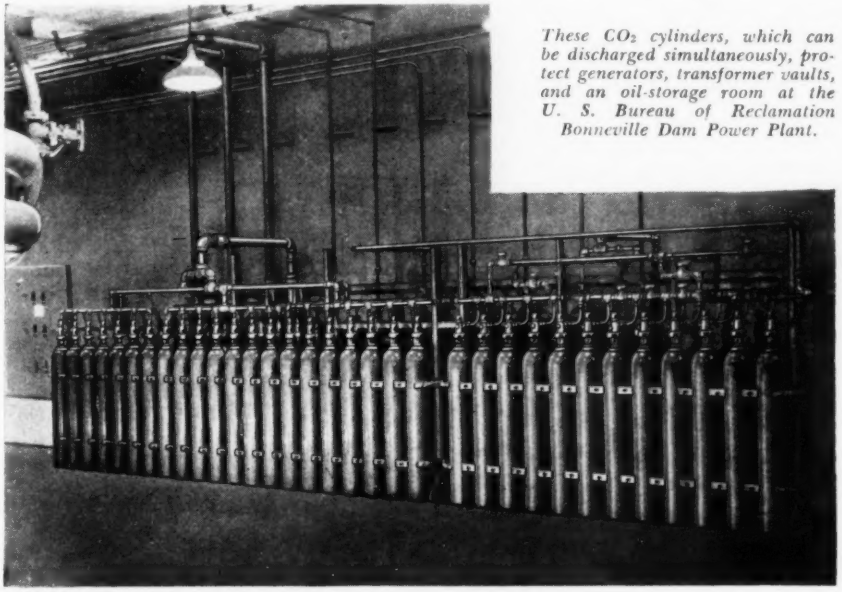
Boulder Dam Plant Protected

In 1936 the U. S. Bureau of Reclamation installed ten systems ranging from 4 to 40 cylinders each, for the protection of generators, switch compartments, transformer vaults, oil-storage and oil purifier rooms. As other generators went into service, in 1937, 1938, and 1940, additional CO_2 systems were installed, until now there are 13 systems protecting 14 generators. The Bureau employs this modern method of protection also at Grand Coulee, Parker Dam, Boulder Canyon, Green Mountains, and Shasta power plants. Indicative of the Federal Government's high regard for this protection, nine systems totaling 111 cylinders were installed in 1942, and four totaling 78 cylinders were installed early in 1943.

Modern Fire Prevention

Although most of these power plants are large, the specific hazards protected against may be no larger proportionately than the same hazards existent in municipal electric stations. These hazards consist of generators of 600 or 1,000 kw—as well as of 20,000 kw or larger generators—electric cables, control rooms, transformers, bus compartments, switchboards, switches, shop rooms, and oil storage.

Modern fire prevention consists not only of the removal of causes of fires, which in the case of electrical equipment cannot be removed, but in the provision of methods of stamping out incipient fires. A discharge of carbon-dioxide gas reduces the proportion of oxygen to a point where combustion cannot be supported. This means extinguishment and without any water damage. Many municipal officials are studying carbon-dioxide fire protection as quickly as authoritative information can be furnished.



These CO_2 cylinders, which can be discharged simultaneously, protect generators, transformer vaults, and an oil-storage room at the U. S. Bureau of Reclamation Bonneville Dam Power Plant.

PHOTOGRAPH COURTESY C-O-TWO FIRE EQUIPMENT CO., NEWARK, N. J.

Inadequate Facilities Impede City's Growth

UNDER this heading *The Cantonian,* monthly bulletin of the Canton (Ohio) Chamber of Commerce displays the following item in its June issue. It is here reprinted as an example of attention to post-war municipal needs by a forward-looking civic-commercial organization:

"Inadequate sewage disposal facilities and lack of sufficient water supply are the most serious impediments of Canton's future growth, members of the Canton Chamber of Commerce believe. Summary of members' view on important community problems, as expressed in recent questionnaires returned to Chamber headquarters, is being conveyed to various committees for action.

"A new city auditorium, grade separations at least at congested railroad crossings, city beautification, street and highway improvement, and airport development were projects most prominently mentioned as deserving of Chamber attention."

To use only the best materials obtainable and to maintain the highest quality and accuracy in workmanship, has been a basic rule of the Hersey Manufacturing Company for more than half a century.

We are still adhering to this time-honored rule in the production of Hersey Iron Case Water Meters with the new Magni-Vision* All Glass Bonnet.

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*Patented by a Hersey Engineer, June 4, 1907.

Fergus Falls, Minn. Declares Dividend

Municipal Electric System Gives Businesslike Service and Profits to Its "Stockholders"

By JOSEPH E. YOUNG
Superintendent-Engineer

THE Water and Light Commission of Fergus Falls, Minnesota, voted an innovation this year in refunds to its consumers. Since 1936 the department has been giving its customers a receipted bill for one month's electric service. This year, however, the commission has changed its procedure and voted a "patronage dividend."

This dividend amounted to 10 per cent of the customer's billing for the year. It either is applied on the current bill, or if the service has been discontinued, may be paid in cash. In a majority of cases, the consumer received enough from his dividend to take care of his current electric bill and also his water and sewage bill, and had a little money left over to apply on his income tax.

The commission, incidentally, has twice lowered electric rates during recent years; however, members feel that the public prefers to receive the refunds or dividends rather than the straight rate reductions.

Electricity for the department is purchased wholesale at an average cost of 1½c per kwhr. The distribution cost for electricity amounts to less than ½c per kwhr, including depreciation and line loss. The line loss averages only 4.6 per cent of the purchased current.

Rates for both water and electricity are unusually low. Although the department does not sell to power users of the city, as this is taken care of by a private utility, the rates for other services are as follows:

Combination Residential Rate:
(Applies to single family residences)
First 50 kwh @ 3.0c per kwh
Next 50 kwh @ 2.5c per kwh
Next 100 kwh @ 2.0c per kwh
Excess @ 1.5c per kwh

Minimum monthly charge for light services—50c

Minimum monthly charge for light and stove services—$1.00

There are 3,093 customers for the various services in town. Approximately 1,200 of these use electric stoves, and they declare that this method of cooking is the most inexpensive and most convenient. The average annual consumption is 1,580 kwhr.

Since 1935 the distribution system of the city has been rebuilt out of current earnings and can be considered almost new. When it was rebuilt, the poles were removed from the streets and placed on the back lot lines and in the alleys. This construction, which was done jointly with the telephone company, has been found a decided advantage in reducing maintenance costs.

Water consumers were not given such a patronage dividend, because the Water Department has outstanding bonds which were sold four years ago to cover the cost of the construction of a water softening plant. Although the earnings of that department would also warrant a dividend, it was the opinion of the commission that surplus earning should be used to retire these bonds.

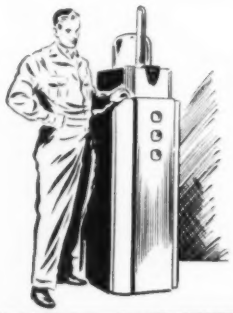
The water is softened in a purification plant using Spaulding precipitators. This plant reduces the hardness from 200 to approximately 58 ppm. It has been in successful operation for over four years as part of a service to 1945 consumers.

The commission consists of three men appointed to manage the water and light department: John A. Knoff, H. E. Swenson, and V. C. Jensen, president.

Two views showing how Fergus Falls, Minn., improved the appearance of its streets by putting the electric service underground. This work was performed cooperatively with the telephone company. It has done more than improve the appearance of the town. It has simplified maintenance problems as well as eliminated the possibility of breaks in the overhead cable.

Penn Salt provides this
THREEFOLD SERVICE FOR MUNICIPALITIES

FOR WATER PURIFICATION . . . Liquid Chlorine
Reg. U. S. Pat. Off.



Penn Salt Liquid Chlorine is manufactured by improved methods which assure extraordinary purity . . . As a result, it is widely used throughout the nation in the treatment of water supply and sewage . . . Although our Liquid Chlorine is required for vital wartime duties, we may still be able to supply our regular customers for essential service.

FOR EMERGENCY SANITATION . . . Perchloron
Reg. U. S. Pat. Off.

Per*chloro*n* is the first thought of many engineers when an emergency water supply situation calls for a convenient, dependable source of chlorine. Per*chloro*n has over 70% available chlorine, is remarkably stable, quickly soluble, easy to use and economical . . . Our armed forces must get Per*chloro*n first . . . but we may be able to supply our regular municipal customers who order in advance for customary needs only.

FOR SWIMMING POOLS . . . TILITE
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Tilite* is the highly effective cleaner which is used on so many swimming pools . . . to remove both surface and imbedded dirt from mosaic, ceramic or vitrified tile. Its two-way chemical-mechanical action works fast and thoroughly. Tilite contains no soap to make surfaces dangerously slippery. *Write for a generous sample*—and see how easy it is to use, and how far it goes. Supplied in 50, 150 and 300 lb. drums.

* Trade-marks Reg. U. S. Pat. Off.

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California County Plans for Peace Era

THE San Diego County Planning Commission has issued a report* which is intended as a guide to "direct the procedure in following a constructive program for the safety, welfare, and happiness of men, women, and children, and create a better and most useful place to live."

In this report is embodied a proposed design for neighborhood communities which is to include an area for a population of approximately 50,000, completely utilizing the area.

The community is to be equipped with dwellings, schools, parks, and business districts. Considering a rolling terrain, the approximate acreage of 2500 would be used for the following: 337 acres for streets: 1682 for dwellings; 96 for schools; 77 for parks; 58 for business; and 250 unused. The number of dwellings would be 12,211. The unused area, consisting of washes or ravines used for drainage, may be added to the area used for parks, making a total of 327 acres developed for recreational use.

The acreage for dwellings and the number of dwellings were based upon a minimum land area of 6,000 square feet for each dwelling. The population was determined by multiplying the number of dwellings by four. These figures were based upon studies of certain areas with a rolling terrain that have been improved with streets and dwellings. Each use was calculated on a percentage basis.

Traffic Routes

Assuming the topography will permit, the plan calls for traffic routes along the boundary of the neighborhood community. The area for the community will, in most cases, include the land lying between valleys or ravines, which lends itself to suitable alignment and grade for arterial traffic routes. The boundary of the various communities, and the alignment of traffic routes are to be projected, or laid out, together.

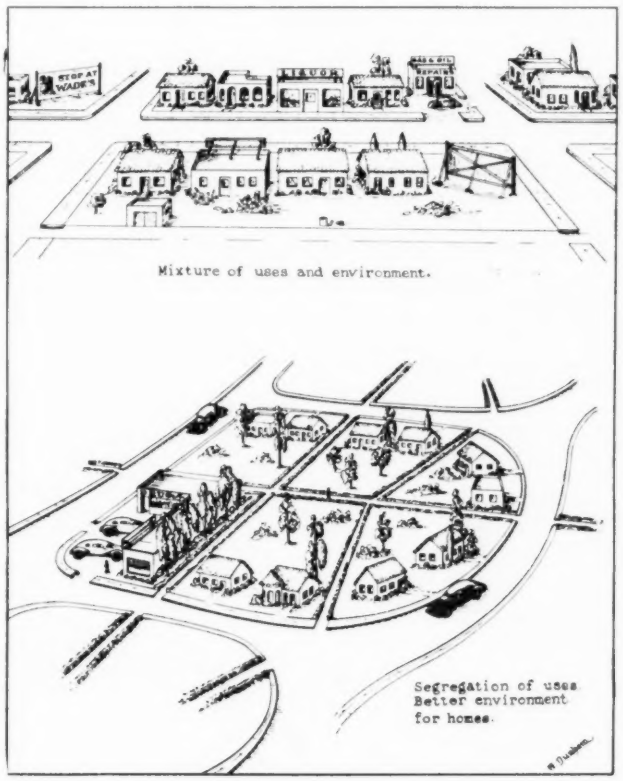
These traffic routes will be designed for through traffic as their primary purpose and, secondarily, as an outlet for the community over a principal street from the community to connect with the through arterial route. In most cases natural barriers will be used to separate the communities, and to avoid the typical shoe-string development and the boundary expansion of an established city.

The planned area laid out as a residential district is to be designed so as not to require the widening of streets, or the creation of traffic arterials when the district has reached its maximum use.

The neighborhood units referred to are considered as development that will take place outside of the incorporated limits, and on vacant land near or adjacent to cities.

The importance of community design, both as a protection to the public and to enhance and maintain values of property, is emphasized with the aid of illustrations such as the ones reproduced below.

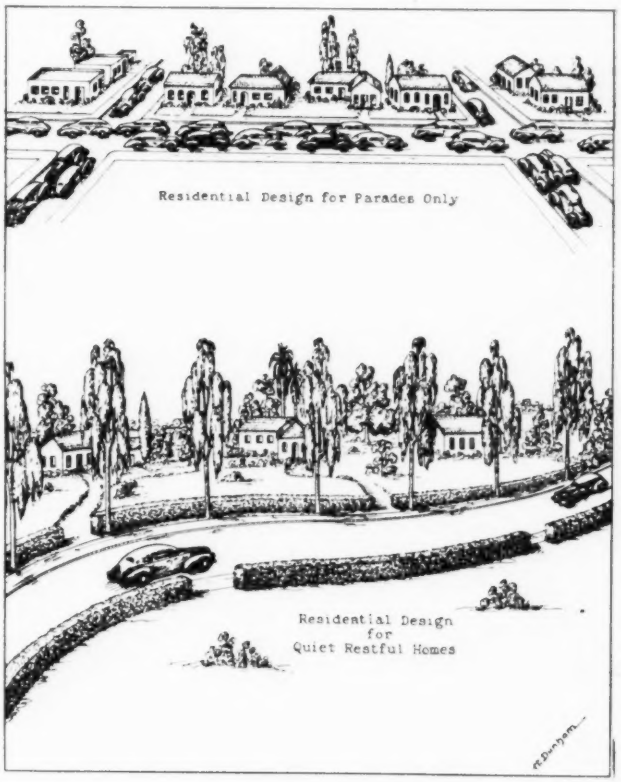
* "Planning for the Peace Era of San Diego County," San Diego County Planning Commission, 1943.



REGULATION OF ACCESSORY BUILDINGS AND USES

The principal use of a residential lot is for a home. The dwelling is constructed according to regulations governing sanitation, size of rooms, height of ceiling, and amount of light for each room.

But without regulations as to accessory buildings or uses, the maximum benefits as a place to live will not be secured.



SEGREGATION OF USES

The encroachment of mixed uses in a residential area may be the cause of poor design, or it may be that the lay-out and restrictions are not desirable or attractive enough to build a 100 per cent residential unit.

The intended use of any future subdivision should include the proper design before any sales of property are made.

PRIORITIES

and

Water Main Cleaning

● Do priority rulings on metals affect your water works? Will pipe, pump and tank purchases need to be postponed indefinitely?

Whether the answer is YES or NO, an important step for *any* water works is to check up on the existing mains, and wherever they are found to be clogged, put them back into condition to deliver their maximum flow by *cleaning*, using the well-known method which guarantees to restore mains to at least 95% of their original carrying capacity:

The NATIONAL METHOD

NATIONAL has the **EXPERIENCE** ——
NATIONAL has the **EQUIPMENT** ——

to meet all sorts of pipe-cleaning conditions — with cleaning machines and power-operated equipment, to take care of all sizes of pipe.

SO—don't let the priorities situation get you down! First try putting your mains in first-class condition by THE NATIONAL METHOD of water main cleaning.

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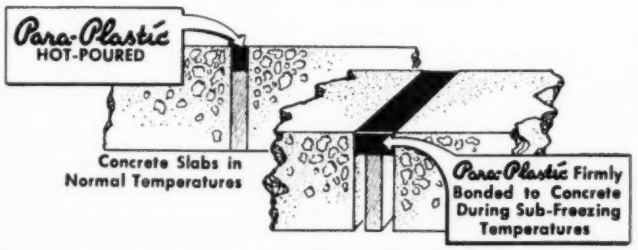
HOT-POURED RUBBER-LIKE WATERPROOF SEALING COMPOUND


Para-Plastic HOT-POURED
Concrete Slabs in Normal Temperatures
Para-Plastic Firmly Bonded to Concrete During Sub-Freezing Temperatures

Widely recognized and formerly known as Para-Plastic Hot-Poured Rubber Sealing Compound, "the effective waterproof seal"—Servicised has recently developed a VICTORY PARA-PLASTIC after many months of experimental research.

VICTORY PARA-PLASTIC is composed of non-critical materials, (containing no rubber) and fully conforms with Federal Specifications SS-F-336 covering a hot-poured sealing compound; as well as Civil Aeronautics Association Specifications No. P-605.

VICTORY PARA-PLASTIC bonds firmly with concrete, steel or wood, and serves as a joint or crevice sealer against infiltration of water. This material is not affected by ordinary extremes of summer or winter weather.

Specify VICTORY PARA-PLASTIC Hot-Poured Rubber-Like Sealing Compound as your waterproof protection in general construction.

ENGINEERS AND OFFICIALS:
Additional information and Specifications will be furnished you upon request.

SERVICISED PRODUCTS CORP.
6051 West 65th Street Chicago, Ill.

WANTED: TRAINED ADMINISTRATORS

☆ Cities all over the country are losing some of their top administrators to the federal and state governments and to defense industries. Unless there are trained replacements for these key men, city governments will be seriously crippled. If you are a department head, you owe it to your city to train an "understudy" for your job. If you are a junior administrator, now is the time to prepare for advancement.

Enroll now in one of these nine practical correspondence courses:

- Technique of Municipal Administration
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- Local Welfare Administration
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- Municipal Public Works Administration
- Municipal Fire Administration
- Local Planning Administration

☆ Special texts have been prepared for administrators on the job. Lesson papers are reviewed by leading authorities in each field. The $35 fee for each course covers the text, individualized lesson instruction, and a certificate upon satisfactory completion of the work. The text alone sells for $7.50 a copy—$60 for a complete set. For use in group training projects, in lots of five or more, the price is $6 a copy.

There are now nearly 800 public officials enrolled in these courses in nearly 300 cities in 44 states.

WRITE FOR A SPECIAL CIRCULAR TODAY

THE INTERNATIONAL CITY MANAGERS' ASSOCIATION

1313 EAST 60TH STREET CHICAGO

Fast Freight Water Distribution

Pontiac, Mich., Pumps Water with Steam from a Railroad Locomotive During a Boiler Plant Shut-Down

A 2-inch temporary line connects the locomotive with the pumps in the plant.

IF YOU are trying to figure out a reason for being on good terms with your local railroad company, talk to W. P. Edmonson, City Manager of Pontiac, Mich. He will tell you of the way that the Grand Trunk Railway came through in the emergency and furnished steam to keep the city's pumps operating while the plant was shut down for repairs.

It all happened during the last week in May when Harry MacDuff, Water Works Superintendent, noticed that some of the upper sections of the smokestack were rusting badly and needed replacing. After a hurried conference with the City Manager, it was decided to lower the stack from its original height of 145 feet to only 70 feet and supply the added draft with a blower. This solution seemed excellent except for one detail—that it required shutting the plant down for repairs, and by no stretch of the imagination could the reserve storage in the reservoirs carry the city through.

Railroad Cooperates

City Manager Edmonson knew that the crisis could be averted if some other source of steam could be supplied, so he contacted W. J. Hogan, general manager of this system. Mr. Hogan immediately ordered one of their big 205-hp locomotives shunted off to the Pontiac water-works siding, and city forces quickly connected it to the pumps.

Superintendent MacDuff, working with George Murray, electrical and mechanical engineer for the railroad, made the connection. City crews fired the locomotive, using city owned fuel.

"We didn't know just what luck we would have with this experiment," said City Manager Edmonson, "but it came out far better than we had ever expected. The locomotive was delivered to the water works Tuesday, and the steam line was immediately connected to the 5 mgd pump. The water-works steam boiler, which had been operating the pump, was taken off the line, and the pump was operated without interruption of service by the locomotive. Harry MacDuff, George Murray, and H. Gustke, decided to try running both the five- and the eight-mgd pumps off this same engine and had no difficulty."

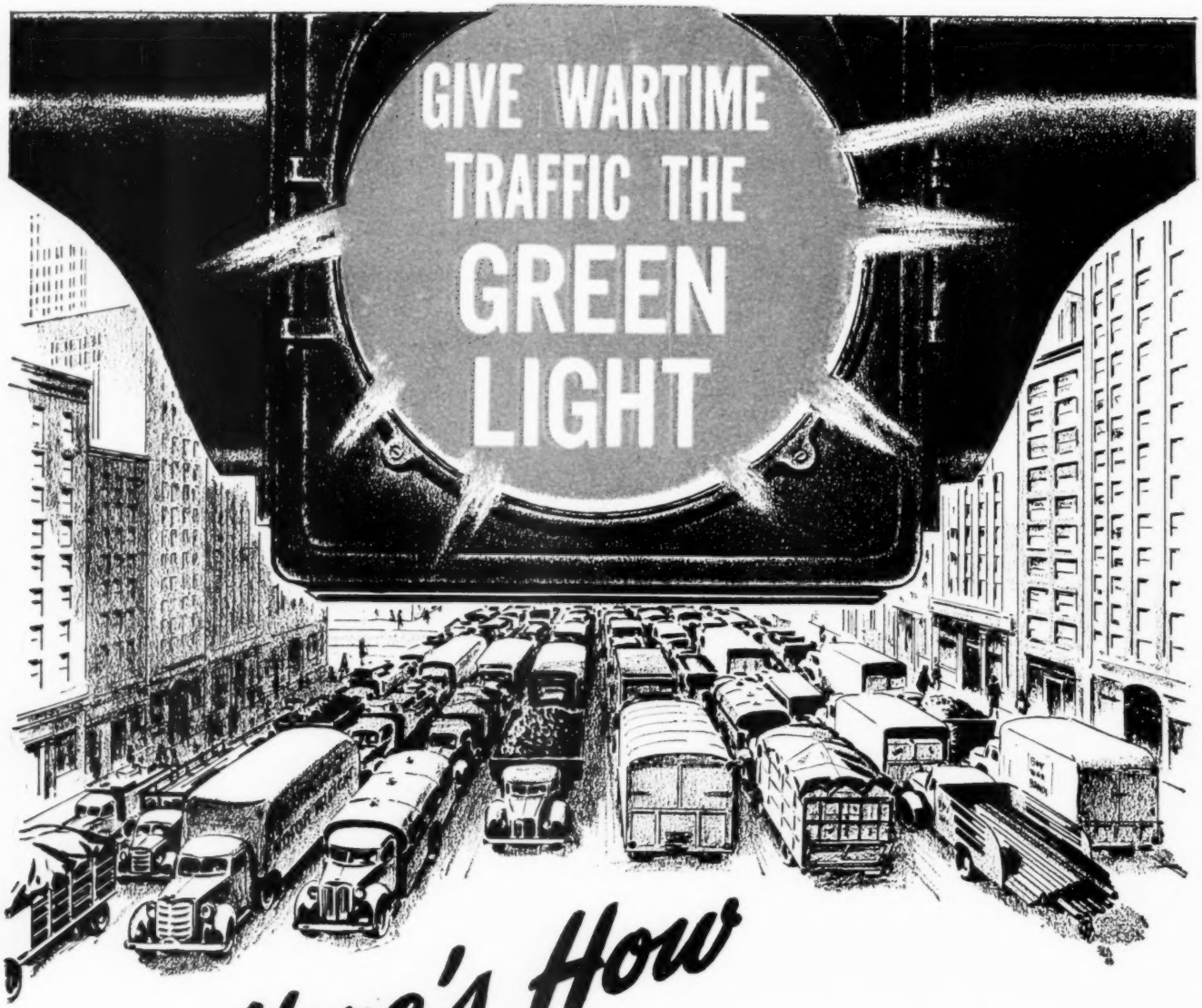
This emergency alternate source of power is to be established on a permanent basis, according to arrangements now complete between the city and the railroad. Grand Trunk officials have assured Mr. Edmonson that if, in the future, an emergency arises which will force a shutdown of the boilers, a locomotive will be supplied to the water works. With that in mind, the city has installed all the necessary fittings and can change from the stationary boiler to the locomotive in 30 minutes.

The municipal water supply of Pontiac is obtained entirely from fourteen deep wells, which pump between 750 to 100 gallons per minute. Five of these wells are low service and pump into a two million gallon reservoir, from which the water flows by gravity to a steam pumping station. This steam pumping station is equipped with a five- and an eight-mgd, Snow horizontal fly-wheel type pump. There is also a 12-mgd, Snow horizontal, double actiing pump which serves at the present time in the capacity of a stand-by unit. The boiler plant, producing steam for these pumps, is equipped with a 150 and 250 hp Scotch Marine boiler and a 400 hp Sterling boiler.

Mr. Edmonson reports that insurance underwriters have considered the experiment as a fire precaution, and lower insurance rates may result.

This is not the first time that officials at Pontiac, Mich., have had to work on a chimney boiler. In 1939 it was necessary to remove the top 45 feet because of rust and deterioration. This spring it was necessary to remove an additional 30 feet due to the same causes; and after considering the problem from all angles, City Manager Edmonson decided to include a draft system to provide sufficient draft during periods of peak demand, when extra pumping equipment would have to be in operation.

A view of the engine that supplied emergency power to Pontiac and the men who arranged for the installation. Reading from left to right: Wm. P. Edmonson, City Manager; H. J. Rice, trainmaster; H. G. Gustke, motor power foreman; C. T. Cognac, freight and passenger agent; Harry MacDuff, Superintendent Pontiac water works.



Here's How YOU CAN DO IT

1. A system of priority routes for war traffic should be designated wherever possible, and these streets and highways should be given preferred traffic-control treatment at all times.

2. Remove and relocate unnecessary signals. Many streets where traffic lights were once needed may now be little used, or may have heavy traffic only at certain hours. At these times use traffic police on these streets, and relocate the signals at intersections of streets which now are carrying the new traffic of war industry.

3. Re-coordinate and shorten signal cycles for progressive operation; about 35 to 50 seconds is the correct time lapse. Longer cycles should be used only at unusually complicated intersections, or to expedite heavy bus or truck traffic. Co-ordinated signals within one-quarter mile of one another will eliminate the backing-up and jamming of traffic, and will reduce the number of stops to save tires and gasoline.

4. Replan the use of flashing amber signals according to the following basic periods. This will help to expedite traffic on streets lightly traveled except for peak loads at shift hours. With variations, these periods can be fitted to the needs of any individual-area problem:

Day

7 a.m. to 9 a.m.—use full signal
9 a.m. to 11 a.m.—use flashing amber
11 a.m. to 1 p.m.—use full signal
1 p.m. to 3 p.m.—use flashing amber
3 p.m. to 7 p.m.—use full signal

Night

7 p.m. to 11 p.m.—use flashing amber
11 p.m. to 1 a.m.—use full signal
1 a.m. to 7 a.m.—use flashing amber

If you need to purchase new equipment, and want to be sure of immediate attention for your priority application, be sure to send the following information to WPB with the correct application form:

1. A record of the traffic count during peak hours at the intersection(s) under consideration
2. A record of any accidents or fatalities which have occurred recently at the intersection
3. A rough map showing the relation of this intersection to war industries or military camps
4. Any other pertinent data which will justify the necessity of the installations, as WPB must have a clear picture of your problems and needs.

For further information and help with your traffic program, call on our nearest office, or write General Electric Co., Schenectady, N. Y.

GENERAL ELECTRIC

453-25-8270

Traffic Control and Facilitation

Conducted by Traffic Control & Facilitation Committee, Institute of Traffic Engineers, 60 John St., New York
Merwyn Kraft, Chairman, Karl A. Bevins, Jay A. Czizek, A. Wallace Gove, Ross C. Harger, Walter H. Klapproth, Theodore M. Matson, William R. McConchie, Henry W. Osborne, Earl J. Reeder, William J. Weller

Transit Operation Without Aspirin

PHOTOGRAPHS COURTESY OF THE CINCINNATI STREET RAILWAY COMPANY

TAKE Cincinnati, for instance, where 18 years ago the central argument in all transit controversies was settled. That argument concerned "a fair return on the investment; how much will the stockholders get."

As all transit men and many city officials know, the 25-year franchise granted on November 1, 1925, carried a "service-at-cost" relation between the city and the company under the direction of the Director of Public Utilities, Edgar Dow Gilman, appointed by the

McWANE CAST IRON PIPE

ALL SIZES
1¼" thru 12"

- PRECALKED
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- THREADED

Immediate Shipments

McWANE CAST IRON PIPE CO.
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CUT MAINTENANCE COSTS 75%

Concrete slab maintenance costs can be reduced as much as 75% by the Koehring Mud-Jack Method. The Mud-Jack raises sunken concrete walks, curbs and gutters, driveways, streets, and airport runways eliminating reconstruction costs. Write for the new Mud-Jack Bulletin which is both illustrative and descriptive.

KOEHRING HEAVY DUTY

KOEHRING COMPANY
Milwaukee, Wisconsin

MUD-JACK METHOD

DO YOUR CITY STREETS HAVE "TELL-TALE" PATCHES?

These uneven, bumpy patches mean that your sewer department is away behind the times! It's old fashioned, unnecessary, unpatriotic and a waste of the taxpayers' money to dig up the town every time your sewers need cleaning.

Use FLEXIBLES and clean your sewers in a jiffy direct from your manholes. Remove stoppages in 20 minutes! Cut out the waste and inconvenience of sewer dig-ups.

Be modern. Don't permit any more of these "tell-tale" patches.

FLEXIBLE SEWER-ROD EQUIPMENT CO.
9059 VENICE BOULEVARD — LOS ANGELES, CALIFORNIA
401 BROADWAY, NEW YORK, N. Y. • PICKWICK BLDG., KANSAS CITY, MO.

present City Manager, Colonel C. O. Sherrill. Service-at-cost gives the city complete control of operation and expenditures. The city can require extensions and determine type of equipment. It also provides a fixed return on capital, as a recognized element of cost. If revenues are insufficient, fares must be raised to make good this provision. If revenues are more than enough to meet expenses and the fair return, the excess goes into a Fare Control Fund. This fund is normally $400,000. When it reaches $600,000, the fare is decreased; when it falls to $200,000, the fare must be increased.

In the last 18 years there has been only one change in fare which occurred in 1932. This change increased the street car fare from 10 cents, or 3 fares for 25 cents, to 9 cents, or 5 fares for 45 cents. The bus fare has remained constant at 10 cents. The fund reached a peak of $460,000 in 1929 and would have dropped far below $200,000 during the depression years had not the company voluntarily relinquished a part of its return. The company preferred not to have fares raised, believing that the law of diminishing returns would reduce patronage.

Thus it is seen that a plan permitting raising of fares can hardly go haywire. Fares can be raised to a certain point, depending on the characteristics of the city and its citizens. Beyond that point a transit company dare not go.

Will fares ever be reduced in Cincinnati? That would seem to be largely up to the local riding public. Should it continue to patronize the system after the war, as it did in 1942 when $74,189 was paid into the Fare Control Fund, time would come when the depression deficiency would be wiped out and $600,000 accumulated. Fares would then be reduced. The fund amounted to $316,116 on May 31, 1943.

Cincinnati, like Boston and Baltimore, is not a low-fare city. Its hills are tough going, and must be mounted or circumnavigated to reach communities beyond. The 456,000 people are spread out over 73.+ square miles. Revenue passengers per mile are much lower than in many other cities. With its many parks, Cincinnati is attractive to live in, but expensive in the matter of transportation.

Street Cars or Buses?

When the franchise ordinance went into effect on November 1, 1925, the property was in bad condition. For instance, certain tracks needed renewal or had to be abandoned and buses installed. A study was made of the system and a policy adopted. If on a 7-mile stretch of line, for instance, one mile of track needed renewal, it was renewed. On the other hand, if only a mile or two was good and the rest needed renewal, the track was abandoned and buses were installed. Street cars then were old, and it was recognized that even if the street railway should disappear in the course of 25 years, new cars would be necessary meanwhile. Twenty-nine light yellow Transit Presidents Conference Committee (P.C.C.) street cars were purchased in 1940 for use on three of the principal long-haul lines.

Capital Cut in Half

Though the existing franchise still had ten years to run in 1940, there was a clause in it which permitted the company to start charging off against the fund its reducible debt, if the franchise were not renewed for another 25 years. Furthermore, it was felt that long-range planning required a new franchise, which was granted on November first of that year. The new franchise required purchase of practically all competing bus lines in the city. This consolidated the system, the city making the franchise exclusive. The conversion from street cars to buses had already eliminated $3,000,000 worth of property or investment, and the abandonment of $8,000,000 more was foreseen. One of the provisions of the new franchise put into effect a reduction in the capital stock, which had been approved by the shareholders, from about $23,000,000 to half that amount, by reducing the par value of the shares from $50 to $25, as a result of which there was provided a reserve against which abandoned property can now be written off. Another result of conversion was the accumulation of quite a number of old street cars. These fortunately were retained and are doing yeoman service during the present equipment famine.

Rolling stock today consists of 500 street cars, 34 Mack and Twin trolley coaches with Westinghouse drive, and 285 buses including Macks, Whites, Fords, Twins, and Yellows. The system consists of 27 car lines, 2 trolley-coach lines, and 36 motor bus lines. Of these lines, 20 cars lines, 23 bus lines, and both trolley coach lines are showing profit, with the rest losers—and heavy losers in normal times.

The Ohio Utilities Commission has no authority over transportation or electric companies within a municipality or a contiguous area thereto. The cities have had to handle the situations with such intelligence as they could mobilize. In Cincinnati previous to 1925, there had been continual arguments between the municipality and the company. The Fare-Control-Fund System with city control was established to settle all questions.

The operation of the company is directed by Walter A. Draper, who has been President for 18 years. The control vested in the city, as previously mentioned, has been exercised by Edgar Dow Gilman appointed by the City Manager in 1925. Company officials work cooperatively and frankly with city officals, including the two named and the nine members of Cincinnati's small Council. The result appears to have been happy. Why? Because the transit company operates under an ordinance which recognizes the fact that good service can only be provided by a healthy system. The rights of investors are recognized. Having complete control of every operation and dollar spent, the city possesses full knowledge of the condition of the company, the adequacy of the service, and its own responsibility. There is another reason. Mr. Gilman clearly distinguishes between the functions of management and regulation. To Mr. Gilman and Mr. Draper each of those two words has exactly the same meaning. Furthermore, their objectives are one and the same—to get good service from a healthy company.

Post War

Cincinnati's future is America's future. In the foreground is business initiative. Will it be enough? In the background looms the Federal Government with its subsidies. How many more straws can it carry?

City Manager Sherrill has just announced a $130,000,000 post-war program to improve city services and traffic flow. The major projects are:

Two sewage treatment plants at the mouths of the Little Miami River and Mill Creek, $13,000,000

Sewers, $8,200,000

Flood wall at the mouth of Mill Creek to protect industries, $12,000,000

New water distribution system for all Hamilton County, $6,000,000

New city hall to house all departments, $5,000,000

General hospital, $2,500,000

Street improvements, including a most elaborate plan for Upper Vine Street, $45,000,000 plus $1,000,000 for minor street improvements

Highway separation and grade elimination, $20,268,000

Traffic relief, rights-of-way, $16,000,000, and the placing of all street cars and buses in an extension of the downtown subway and rapid transit line built 15 years ago but never completed

Airports are not included in the present program, but are expected to be developed on an important scale. While no public announcement has been made, it has become known that adequate consideration is being given

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by both the city and the company to the possibility of the use of the newest branch of transportation, travel by air. When this will fit into the city-wide picture, of course, remains to be worked out.

War

At the direction of the Office of Defense Transportation that all cities name local adminstrators and local war transportation committees, Mayor James Garfield Stewart of Cincinnati, acting as Chairman of the Defense Council of the county, appointed Morris Edwards as Administrator. An increasing number of cities will be giving thought to retaining a local transportation committee after the war. The purpose of such a committee will be to assist the company in getting constructive things done promptly with the approval of the public. In many American cities in the past there has been far too little comprehension of the vital part which the transit company plays, not only in its daily function of carrying the local public, but in the economies and social development of the city as well. If all cities were as conscious of their transit system as Cincinnati has to be by virtue of its official relationship to it, the old transit problem would gradually fade out of the American picture.

When problems do arise here, the city and the company discuss them and decide on action. Fundamental changes are in the province of Council; the administrative function is handled by the Director of Public Utilities, reporting to the City Manager. If there are objections from citizens regarding any changes or proposed changes, they are disposed of by the Director of Public Utilities, or if they are matters that are in the province of Council, then the City Manager, Director of Public Utilities, and Council may consider them together. Appeals are always possible. Even the Company can appeal from a decision of the Director, and if no agreement is reached, the matter is arbitrated. Solutions, however, have uniformly been reached by agreement. If the solutions envision good service and a healthy company, they are in the interests of the taxpayers and riders. Not every city can direct the destinies of its transit system. Unfortunately, not every city can have them directed by a competent, reasonable man whose policies are reviewed by a competent, public-spirited manager and council. That, however, is what assures good public transportation.

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Planner Gives Range; Traffic Engineer Fires

CITY Planners, in order to retain the intended place in government of their plans and proposals, should realize that they will perform their greatest service and clearest function by confining themselves as much as possible to research, study, and advice or recommendations. That does not mean, however, that planners should divorce themselves from realities or practical solutions, because there is much satisfaction and benefit to be derived, both for themselves and the public, in associating with the details of the carrying out of their plans. In smaller towns, where departments are inadequate for such projects or where interest is lacking, planning commissions should give attention to the carrying out of details which might otherwise be ignored or neglected.

All of this leads to the following conclusions—the planning commission, of course, after determining the land use plan for the community, would proceed with the preparation of a traffic plan, which would designate the location and development of appropriately planned thoroughfares based on comparative uses. It would also indicate the location and size of planned public parking facilities. Following that phase, there would be prepared a plan for truck routes and perhaps a plan for bus routes. The truck route plan should be the basis for a truck route ordinance to be accompanied by a map showing the truck routes as designated by the ordinance. It would be sensible and logical that the map would be compared very carefully with the truck routes plan.

Responsibility for Routing Busses

In a city where there is a traffic engineering department or division, the preparation of the truck route ordinance with its map and the actual designating of routes should be a responsibility of that department or division.

The degree to which the city government can determine the method of routing buses, or the schedules and types of equipment, is dependent on the type and place of ownership. If this service is public, it is handled completely at the discretion of the city government. If private, there would still be a franchise granted by the city, according to which the city should properly retain a great share of control because of the public nature of the service.

I might be reluctant to give any exact opinions as to what I think should apply in the way of control in my own city, but I can say that, during this emergency, there have been several public expressions to the effect that the local transportation system should become a publicly owned and administrated function. In conclusion, I should like to state that, in the event there is a qualified planning commission in a city where there is not a traffic engineering division, the planning commission should be able to recommend to the city legislative body, in rather complete detail, the entire working of the transportation system. That system would be developed from the initial stages of a traffic plan, based on a land use plan to the actual scheduling of buses and designating of truck routes. However, the best arrangement would be for the traffic engineering department to prepare all such working plans and developments based on master plans for ultimate conditions as prepared by the planning commission.

I have discussed the contents of this letter with our Supervisor of Traffic Engineering Henry A. Barnes, and find him substantially in accord with my opinions.

GEO. C. HAYWARD,
City Planner, Flint, Mich.

Mayors Urge Fairer Allocation of State and Federal Highway Funds

AT the recent 1943 annual meeting of the New York State Conference of Mayors and Other Municipal Officials, a resolution was adopted urging allocation to cities and villages of state-collected motor vehicle fees and gasoline taxes; also that the state make a reasonable contribution to the construction and maintenance of city streets forming a part of the state highway system.

The Conference, also, in a separate resolution, called attention to the discrimination against urban streets and highways in the distribution of Federal highway revenues, and urged the Federal Government, and particularly the Public Roads Administration, to abolish this policy of discrimination and to substitute therefor a fair and just system of allocating highway revenues based upon actual traffic needs.

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Traffic Safety in Wartime

By LOUIS J. SCHRENK
General Superintendent
Detroit Public Lighting Commission

A TRAFFIC accident invariably is the result of a number of happenings. It is questionable to assign any specific act by an individual as the one cause of an accident.

Of all the variable causes, the human equation seems to be the one that is most difficult to solve. Each individual is a problem in himself. Many persons will drive cars through fogs, rain, and icy streets without mishap; yet on an improved, spacious highway, during clear daylight hours, they find themselves in a serious accident. This is pointed out to warn against forming conclusions by comparing traffic accidents over short periods of time. As an example, comparing the results of a month as against the previous month, or the same month in a previous year, there are so many changes and variables involved from time to time, that comparisons of short durations are of little value in arriving at results. Statistics which point out trends over long periods give dependable information.

This paper points out the value of adequate street lighting; also the results that might reasonably be expected due to blackout, dimout, and brownout lighting as contemplated on our streets and highways as a war measure. Let us treat briefly the five types of war lighting: normal, blackout, the dimouts, and brownout.*

The War Production Board, I believe, grants priorities for new lighting facilities where required on access roads to war plants or military establishments. Applications should include data on volumes of vehicular and pedestrian traffic, accident experience, street conditions, and a detailed layout of the lighting installation. Such information enables the responsible officials to decide whether the lighting will further the war effort.

Blackout

The War Department Specification "Street Lighting During Blackouts" prescribes an alternate street-lighting system which it is permissible to employ where needed during blackouts. It provides an average street illumination of 300 micro-footcandles (maximum 600 micro-footcandles), or not very much more than starlight.

The arrangements in preparation for blackouts, to be made by local officials responsible for street lighting, within areas designated by proper military authority, are stated in the War Department Specification to be the following:

(1) Provide switching facilities and assign personnel to insure that the present street-lighting system will be turned off quickly—in not more than two minutes—after the official blackout signal has been given.

(2) In consultation with responsible local military authority, make a survey to determine locations where an auxiliary blackout lighting system may be desirable in the event blackouts become frequent or of long duration. In general, such locations will be those where substantial pedestrian movement is expected during blackout—business and office districts, shopping centers, roads and walks leading to war plants, and important crosswalks on heavily traveled thoroughfares.

Provisions for emergency switching of present lighting, as stated in (1) above, are believed to be complete throughout the United States. It is doubtful, however, whether the plans in (2) have progressed as far as they should. Municipal and utility officials in most areas appear to be following the debatable course of postponing this planning until it becomes more evident whether blackouts will be frequent or of long duration.

Dimout for Sky Masking

It is the responsibility of the naval and military authorities to determine when and where sky-masking dimouts of street lighting are required to protect coastal shipping, and to avoid "beacon effect" which might guide enemy aircraft. *It is clearly in the interests of the war effort to avoid such lighting restrictions where they are not needed.*

Development and adoption of efficient sky-masking devices have been hampered by differences and by changes in the dimout regulations in the various coastal Service Commands. Officers in the Air Corps, the War Department General Staff, and the Corps of Engineers, assert that the beacon effect of sky glow has no practical significance as a guide to enemy aviators. The reasons given for the opinions were (1) radically improved techniques of navigation by stellar patterns, (2) the guidance afforded by commercial broadcasting stations, and (3) the likelihood that any bombings of this country would be carried out when bombing conditions were favorable—that is, on clear moonlight nights when landmarks are clearly visible from the air.

Dimouts for Sea Masking

Sea-masking dimouts of street lighting luminaires, directly visible from the sea, require complete masking on the seaward side. Preferred designs of masks are those which produce minimum interference with light distribution up and down the street. In some cases it is necessary to include some masking on the shore side of the luminaires in order to reduce the light on buildings or other objects which would otherwise be sufficiently bright to be visible from the sea.

Brownout

It has been reported recently that a brownout of virtually all non-essential outdoor lighting may be ordered this summer. The prospective order by the War Production Board is for the announced purpose of "conserving coal, transportation, electric energy, lamp bulbs, critical materials, manpower, natural gas, oil, and equipment."

The "brownout" is unlike the "dimout," which has greatly reduced the effectiveness of street lighting. The "brownout" order as now proposed,

* This material on war-curtailed lighting was supplied by Kirk M. Reid, Nela Park, General Electric Co., Cleveland, Ohio.

Another Battle Flag Goes Up the Mast

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will have no effect on automobile lighting, nor does it contemplate the curtailment of street lighting. *Thus the two principal factors in the increase of accidents in "dimout" areas will have been eliminated from the "brownout."* However, there is some indication that WPB may ask state and local governments to review their street-lighting programs with the idea of curtailing whatever lighting can safely be dispensed with. If such a request is made, local governments cannot make logical appraisals unless the order sets forth standards of safe lighting for the various classes of streets. Such standards, based on careful study of all available data relating to this matter, are presented in the Illuminating Engineering Society's "Recommended Practice of Street Lighting." These standards have been accepted by such organizations as the Institute of Traffic Engineers and the American Public Works Association. They have been widely published in *Illuminating Engineering, Public Works Engineers Yearbook* 1942, as well as THE AMERICAN CITY. This broad distribution and acceptance should simplify interpretation of whatever order may issue.

Street Lighting's Job

Street lighting is usually intense where "seeing" by surface detail and color distinction is difficult. Under these conditions, one sees principally by silhouette or contrast. It will be interesting to note the effect on traffic safety during "brownout" when all sign lighting, show window lighting, and all other exterior lighting is extinguished. Where lighting systems meet the I. E. S. Code for Street Lighting, the visibility on the street, in all likelihood, will be enhanced. Traffic accident data should be carefully collected through any "brownout" periods, and studies made of its effect on traffic safety. Much helpful knowledge in the art of street lighting might thus be gained.

The average fatalities per month, in Detroit, for four years prior to the installation of safety lighting, and for five years since safety lighting was installed, were reduced on a per hour basis as shown in Chart I.* The fatality rate per hour is higher during the winter months than during the summer, which leads one to recognize that *the hazards during the winter months because of weather conditions are greater.* The variations in death per hour of darkness from month to month are shown as considerably less under safety lighting than under the old and inadequate lighting—pointing out that many hazards are removed when better seeing conditions are provided.

These curves also point out a rapid increase in the rate of fatalities per hour during the latter months of the year, while during January and February there is a reduction. Individuals becoming accustomed to the long hours of daylight driving and less night driving during the summer months, are lulled into a sense of security when the winter months approach. They overlook the fact that their visibility distance is greatly shortened after sundown. Should the same care be taken as in fogs or rainy weather, when darkness approaches, that is reduce speeds in proportion to visibility distance, the fatality rate per hour would not show such an increase.

Fallacious Economy of Poor Street Lighting

Long before dimout lighting was contemplated, Detroit was forced to practice so-called "economy" lighting. The results are indicated on Chart III. During a period of two years, lighting was reduced from what was then normal to 85 per cent of that value, and then down to 65 per cent of normal. The results are as indicated: 49 per cent of the total fatalities were day, and 51 per cent were night with normal lighting; under 85 per cent of normal lighting the night fatalities increased to 63.3 per cent of the total, while the day were reduced to 36.7 per cent; under 65 per cent of normal lighting the night became 66.8 per cent of the total, while the day were further reduced. In other words, the night trend increased while the day trend decreased, due to decreased traffic in the depression years.

Experience of Toronto, Canada, though many years later, confirms the Detroit conclusion as shown by the percentages in Chart IV. As the lighting is decreased, the night accidents become an increasingly larger proportion of the total; the day accidents decrease proportionately as traffic decreases due to conditions imposed by the war.

Dimout conditions prevail at the present time along the coastal areas. The effect of dimout on fatal accidents in the Greater New York area are indicated on Chart V. During a year of normal lighting, 473 fatal accidents happened at night as against 557 during a year of dimout lighting. During the same period, the daylight trend was reversed, going from 310 to 225 fatal accidents. The daylight trend reduced as traffic was reduced. However, the night trend increased during this same period, notwithstanding the reduced traffic. Reduced street lighting was the principle major change made in the physical conditions pertaining to traffic safety.

Statistics for Manhattan confirm the Greater New York data. Under dimout conditions, the fatal accidents at night increased; while during a comparable period, the day accidents decreased. The number of accidents are as indicated on Chart VI.

The National Highway Users Conference reveals that—

In 749 Michigan war production plants, three-quarters of the 435,000 workers travel daily in private cars.

In one Massachusetts war plant, employing 21,118 workers, 79 per cent traveled to and from work in automobiles and 10 per cent ride buses.

At an aircraft plant, 92 per cent of the 50,000 workers use private cars.

At one Navy yard, 3,000 make daily round-trips of 6 to 85 miles by automobile.

Our passenger automobiles, buses and trucks must be kept rolling to insure victory. The streets and highways are used during the 24 hours to aid in war transportation and war production. Since accidents are more serious and more numerous at night, greater attention should be given to increase the safety of night travel.

Accidents are reduced as lighting is improved. For example, see Chart VII, for 25 high accident street intersections in Los Angeles, Calif., at which no improvement was made except lighting.

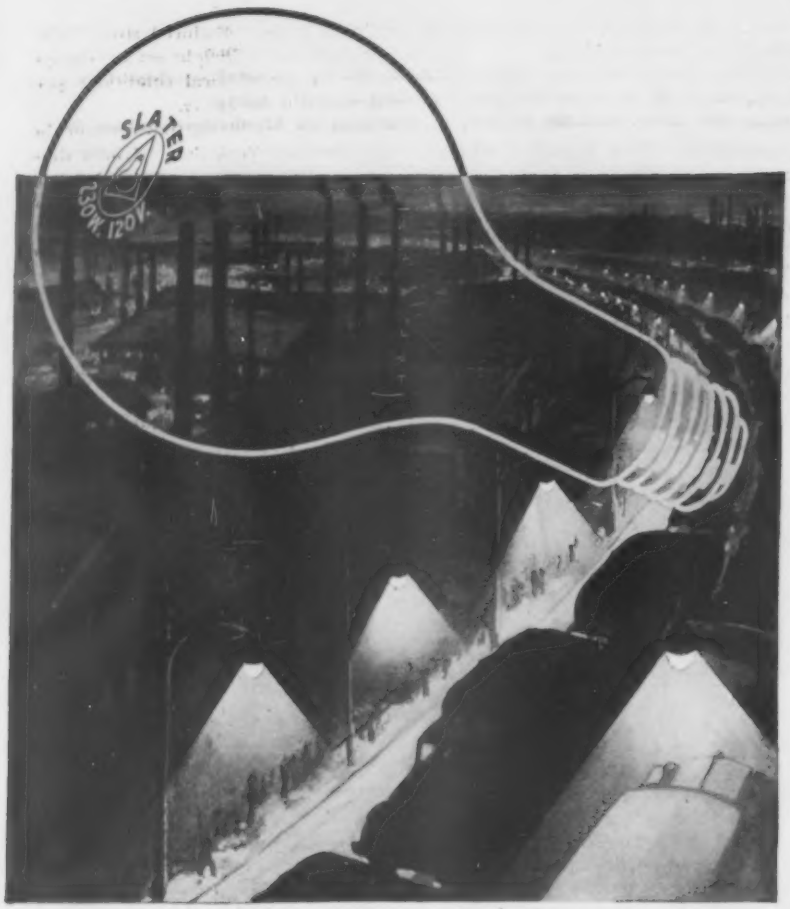
In San Francisco, traffic deaths took place during the first five months of the years as follows: 32 in 1941, 37 in 1942, and 60 in 1943 under hooding of street-lighting fixtures and dimout restrictions.

A survey made by Richard Simpson, Illuminating Engineering Consultant for the State of Connecticut, indicates the change in the number of accidents per M.V.M., 1943 over 1942, thus:

RURAL	
Day	— 8.2%
Night	+46.2%
URBAN	
Day	+ 2.2%
Night	+30.0%
RURAL AND URBAN	
Day	— 2%
Night	+35.1%

The curves on Chart II give, from actual experience, the amount of illumination required for safe travel at night on thoroughfares which carry approximately their capacity of vehicle volume during rush hours. Lighting of less than .8 lumens per square foot on Detroit streets with present traffic conditions, is not sufficient for safe travel.

* See charts on p. 91.



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In the black of night . . . machines humming in thousands of war plants . . . night shifts coming and going . . . trucks trundling along to deliver war materials. This is America's battle of production, night after night.

And on these busy traffic channels, greater safety in travel is vitally important. Many accidents must be prevented. For every man-hour saved is essential to victory. That is why efficient and dependable street lighting is so necessary . . . especially in dimout areas. For the failing of only one lamp causes an isolated blackout spot that is hazardous to the life of many workers.

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Seven charts by Louis J. Schrenk, showing relation between street lighting (obsolete and modern) and traffic fatalities at night (See pages 87 and 89)

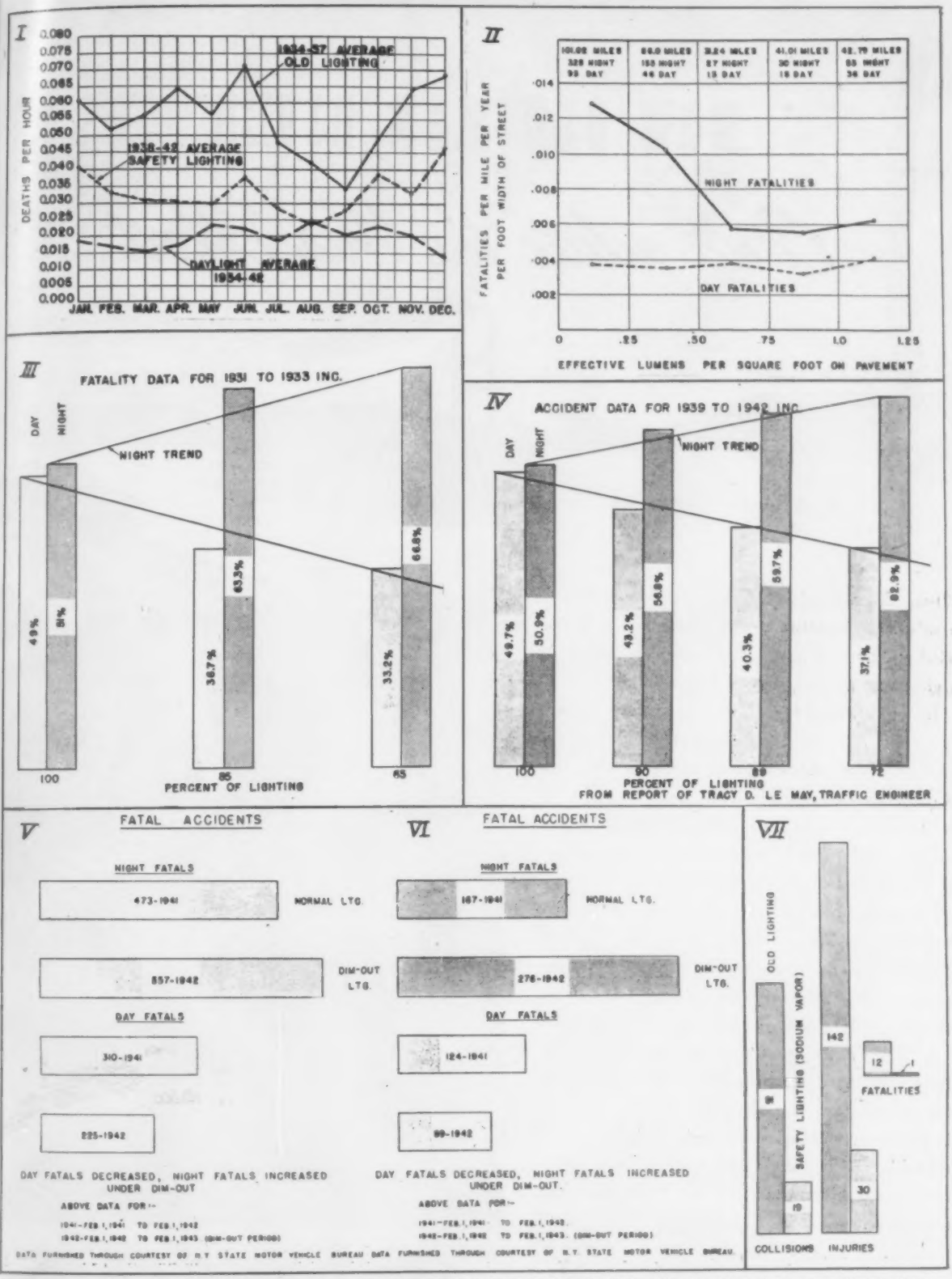

Fig. I, Average automobile fatalities per hour before and after safety lighting in Detroit, Mich. Fig. II, Effect of pavement illumination on fatalities. Fig. III, How the percentage of night accidents increased when Detroit curtailed street lighting first to 85 per cent of former illumination and then to 65 per cent. Fig. IV, Note the same trend when Toronto, Canada, curtailed street lighting. Figs. V and VI, Dimout data; fatal accidents in Greater New York and Manhattan, respectively, before and after the dimout; day fatals decreased due to less congestion, night fatals increased due to insufficient street lighting. Fig. VII, night accident experience at 25 intersections two years before and two years after safety lighting; collisions, 91 before and 19 after, injuries 142 and 30, fatalities 12 and 1.

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ARMCO

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of
City Planning and Zoning"

Zoning and Planning Notes

With the cooperation of
ALBERT S. BARD
Counsel,
National Roadside Council

Large Developments Combining Special Types of Residential Business and Industrial Uses in Residential Zoning Districts

An amendment to the New York City zoning resolution of interest to planners generally was adopted last month. The history of that amendment is in brief as follows:

The Sylvania Electric Products, Inc., is seeking a suitable location for the post-war construction of a $2,000,000 industrial laboratory with a site covering a large area. The development in all of its features should, in the opinion of the company, be in a residential district in which, under the zoning resolution as it stood, business and industrial uses were not permitted.

The company therefore applied to the City Planning Commisison to frame and submit to the Board of Estimate for its approval an amendment to the zoning resolution permitting the issuance of a permit for such a development in a residential district.

City planners have long believed that developments, generally of considerable size, which contain various uses, residential, business, and even industrial, if carefully considered, would in some cases be advantageous for business reasons and, far from being harmful to the public, would be in the general interest. Under private ownership such developments could be and have been made. Seeing this, many zoners have advocated zoning ordinances under the police power which permit such developments and in a few cases provisions to this effect have been inserted in zoning regulations.

Accordingly, the Planning Commission of New York City, realizing the advantages of such developments and the great care with which provision for them should be framed, drafted an amendment of this character, trying to make it general enough to be applicable to similar developments in the future. The amendment is in substance very briefly as follows:

The plot shall be not less than 10 acres in size, of which not more than 25 per cent shall be occupied by buildings and not less than 25 per cent shall consist of a landscaped park area to which the public shall have access subject to reasonable restrictions. The floor area of the buildings shall not exceed one-half the area of the plot.

The minimum distance between any two buildings shall be not less than 20 feet. All buildings shall be so erected as to provide adequate light and air at least equivalent to the requirements of the city's zoning resolution. The buildings shall be so constructed as to be consistent with the residential character of the district. Ordinary trades and industries are carefully excluded.

The plans of the project are subject to the approval of the City Planning Commission.

This amendment was filed with the Board of Estimate to become law, unless disapproved of by a majority of the Board within 30 days.

Soon after the filing of the amendment with the Board of Estimate a motion was made in the Board to reject it and this motion was defeated 13 to 3. Since then the 30-day period has elapsed and the amendment has, therefore, become a part of the Zoning Resolution of the city.

Editorial Note:

It seems to us that this amendment is a rational approach to the problem of proper location for certain types of business and industry whose presence, under proper safeguards, would not be harmful to residential districts.

Discontinuance of Non-Conforming Uses

A CORRESPONDENT of the American Society of Planning Officials has pointed out that many zoning ordinances do not allow re-establishment of a non-conforming use after a specified period of non-operation, and asks:

"How are we to handle the many appeals that will be made to allow the re-establishment of non-conforming auto service stations, grocery stores, real estate offices, night clubs, restaurants and such which have been closed more than six months or a year during the war?"

In its July *News Letter* the Society says:

"A number of factors will have been responsible for the discontinuance of non-conforming uses. Among them are: (a) a dealer in gasoline finds it unprofitable to continue in business, (b) a dealer in gasoline has been "closed up" because of some violation, (c) a dealer in gasoline has found it more profitable to enter a factory or a war industry, (d) a dealer in gasoline or another "non-conformer" has joined the armed forces voluntarily or through selective service, (e) a butcher, grocer, restaurant owner has closed up because he cannot obtain supplies. There are many variations and the cause of the closing may be a factor the community will want to consider when the war is over.

"To what extent is 'intent' a factor in discontinuance or abandonment of a non-conforming use? To what extent are patriotic appeals to be considered?

"And who shall consider such appeals? If the ordinance provides for discontinuance after a stated period, can that provision be waived later? Does it require a legislative act now, or after the war is over? And will zoning boards of appeal consider that they have the right to waive such rules? Our member questions the suitability of a variance in such cases (with which we agree) and suggests that legislative action is required.

"He writes further, 'Although this problem is a bit difficult, the situation should be viewed as an opportunity that may not come again in residential neighborhoods and along many highways. Forethought, wisdom, and political tact are needed.'

"What has your city done about such situations? What do you propose to do? What do you suggest?"

The Questions Answered

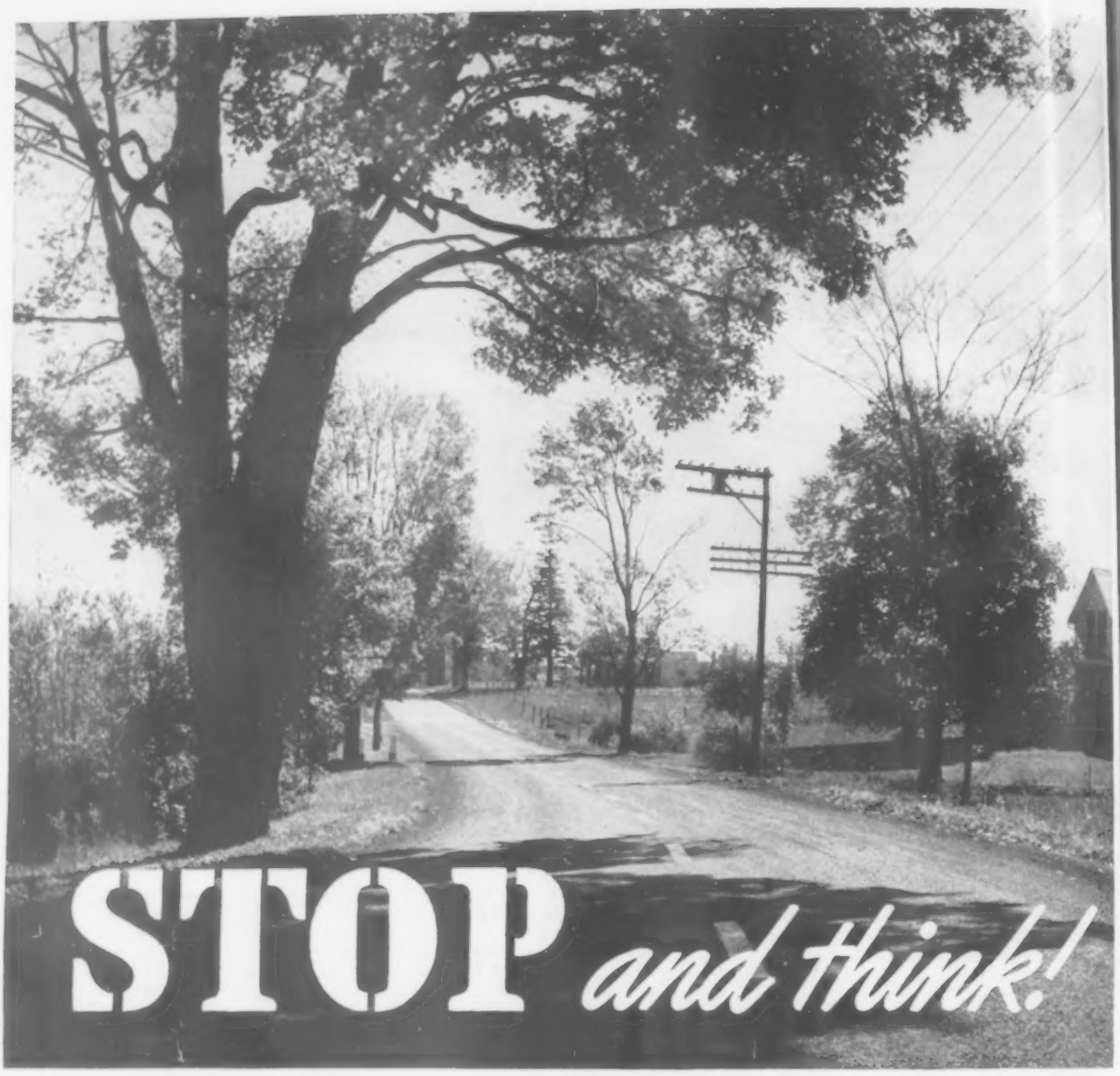
The editor of THE AMERICAN CITY Zoning and Planning Notes is glad to attempt to answer these questions and hopes that our readers will send us any comments that they may wish to make.

Zoning ordinances usually provide that when a non-conforming use is abandoned it may not be reinstated, and discontinuance is evidence of abandonment. The question at issue is not the cause of abandonment but whether it has occurred.

Yes, abandonment is a matter of intent, but must manifest itself in overt acts; and the "factors" mentioned as "responsible" for the supposed discontinuance are not, in our opinion, a statement of overt acts sufficient to indicate whether abandonment has occurred.

The correspondent of the American Society of Planning Officials says with truth that "The cause of the closing may be a factor the community will want to consider when the war is over," and asks "To what extent are patriotic appeals to be considered" and "Who shall consider such appeals?"

To answer the last question first, appeals shoud not be considered by the officials whose duty it is to enforce the zoning ordinance; they must enforce it as it is. If, for patriotic reasons, the community wishes provisions in the ordinances softened for veterans after the war, it should urge its local legislative body to amend the zoning ordinance accordingly.



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Municipal Law Notes and Decisions

Prepared by National Institute of Municipal Law Officers, Washington, D. C.
Charles S. Rhyne, Executive Director

Federal Wartime Housing Powers vs. Municipal Ordinances

Power of Federal Public Housing Authority to Construct Housing Projects in Violation of City Zoning and Building Regulations

On June 18, 1943, the District Court of the United States for the Eastern District of Virginia rendered a decision holding that the Federal Public Housing Authority has a legal right to erect two trailer camps in the City of Alexandria, Va., in violation of that city's zoning and other applicable ordinances, and the city's suit for an injunction was denied. The Court based its decision upon the reasoning that the property on which the trailer camps are to be located was acquired under authority conferred by the Second War Powers Act, which Act provides that property acquired thereunder ". . . may be occupied, used, and improved for the purposes of this Act, notwithstanding any other law." The Court did not consider the Lanham Act requirement that FPHA projects conform to local regulations "so far as may be practicable." *City of Alexandria* v. *Brodie*.

On July 6, 1943, the United States District Court for the Eastern District of Pennsylvania held that the Federal Public Housing Authority has a legal right to erect either permanent or temporary houses without complying with city of Chester ordinances. The city issued a warrant for the arrest of FPHA's contractor, who was erecting the houses, and the local United States Attorney then brought suit against city officials to enjoin them from interfering with the FPHA projects. The Court based its decision almost entirely upon a partial quotation of the following provision of the original Lanham Act:

". . . the Federal Works Administrator (hereinafter referred to as the 'Administator') is authorized:

". . . (b) By contract or otherwise (without regard to sections 1136, as amended, and 3709 of the Revised Statutes, section 322 of the Act of June 30, 1932 (47 Stat. 412), or any Federal, State, or municipal laws, ordinances, rules, or regulations relating to plans and specifications or forms of contract, the approval thereof or the submission of estimates therefor) prior to the approval of title by the Attorney General to make surveys and investigations, plan, design, construct, remodel, extend, repair, or demolish structures, buildings, improvements, and community facilities on lands or interests in lands acquired under the provisions of subsection (a) hereof or on other lands of the United States which may be available. . . ."

This original Lanham Act was adopted as Public Law No. 849 of the 76th Congress and approved on October 14, 1940. The Court did not quote or even refer to an amendment to this original Lanham Act, Public Law No. 409 of the 77th Congress, which was adopted on January 21, 1942, which provides:

"Consultation shall be had with local public officers and local housing authorities to the end that projects constructed under the provisions of this Act shall, so far as may be practicable, conform in location and design to local planning and tradition."

References by the Court to the Supremacy Clause of the Federal Constitution are rather out of order, since the Congress has covered this subject by the legislation just quoted and there is no Federal law to which the Court can properly point as being intended by the Congress as "supreme" in this case.

These two cases again bring up the rather constant controversy which is going on between the Federal Public Housing Authority and city officials over FPHA projects which are erected in violation of local ordinances and sometimes over the vigorous opposition of local officials. "Failure of the Federal Works Agency to Abide by Municipal Ordinances in Constructing Housing Projects," *Municipalities and the Law in Action* (1941) pages 93-198. The amendment to the Lanham Act cited in the *City of Chester* case was a direct result of this controversy, so it should be construed as a Congressional instruction to Federal agencies acting under this Act to cease such ordinance violations.

Previous Decisions

Up to the present time there have been very few court decisions on this important matter. The only decision of an appellate court on this problem is that of *Oklahoma City* v. *Sanders*, 94 Fed. (2d) 323, 115 A.L.R. 363 (C.C.A. 1936), which arose as a result of the attempted application of municipal regulations requiring licenses, bonds, and inspections on a Federal project in Oklahoma City. In this case, the Federal Government was held not to fall within the purview of such municipal regulations, as the Federal statute providing for the acquisition of the property did not give to the state the right to exert its police power over such property, even though civil and criminal jurisdiction had been retained by the state in granting the Federal Government control of the property. The Court pointed out that only the exact intent of the legislation providing for the acquisition of such property should be followed, and any attempt on the part of the Federal Government to give the state the jurisdiction of the Federal Government over Federal property should be closely and strictly construed. It was further held that the grant by the state of jurisdiction over the premises to the Federal Government included the power of regulation and control in matters which ordinarily fall within the police power of the state such as building regulations. The Criminal Court of Davidson County, Tennessee, in 1941 rendered a decision that the County Plumbing Inspector had no authority to penalize a contractor on a Federal housing project for failure to comply with the county building code. *State of Tennessee* v. *Gallagher*. On March 19, 1943, an Illinois Circuit Court rendered a similar decision in the case of *City of Rock Island* v. *Goodwin*.

In Report No. 69 (February, 1941) of the National Institute of Municipal Law Officers, there is an opinion to the effect that an ordinance requiring a city building permit does not apply to the construction of a Federal post office.* Also see Report No. 45 (June, 1939) of the National Institute, wherein there is a similar opinion on the applicability of a local building code to the demolition of a Federal post office. The *Sanders* case, *supra*, was relied upon in both of these opinions as authority for questioning the application of local regulations to the construction and demolition, respectively, of a Federal post office. Also in this connection see the cases of *James Stewart & Co.* v. *Sadrakula*, 309 U. S. 94 (1940), *Sollitt & Sons Construction Co.*, 161 Va. 854, 172 S. E. 290 (1934), *Winston Brothers* v. *State Tax Commission*, 156 Ore. 505, 62 P. (2d) 7 (1936), and *James* v. *Dravo Contracting Co.*, 302 U. S. 134 (1937), and compare

* The opinions of the National Institute which are cited above apply to Federal post office property, rather than FPHA projects, and this distinction should be carefully noted because it is the recent legislation which makes the same conclusion inapplicable to FPHA.

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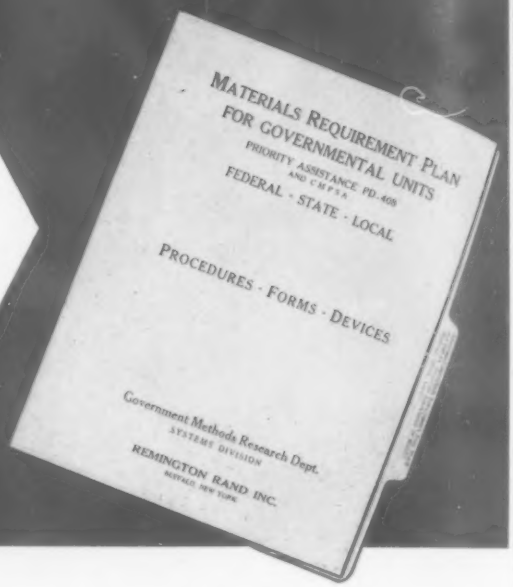

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United States v. ***Certain Pieces of Land in the Borough of Audubon, 6 Municipal Law Journal 76.***

Demolition of Temporary Housing

Of interest of those concerned with the problems discussed herein is the following provision from the latest amendment to the Lanham Act (Public Law 119, 78th Cong., July 7, 1943):

"SEC. 313. The Administrator shall, as promptly as may be practicable and in the public interest, remove all housing under his jurisdiction which is of a temporary character, as determined by him, and constructed under the provisions of this act, Public Law 781, Seventy-sixth Congress, and Public Laws 9, 73, and 353, Seventy-seventh Congress. Such removal shall, in any event, be accomplished not later than 2 years after the President declares that the emergency declared by him on September 8, 1939, has ceased to exist, with the exception only of such housing as the Administrator, after consultation with local communities finds is still needed in the interest of the orderly demobilization of the war effort: Provided, That all such exceptions shall be reexamined annually by the Administrator and that all such exceptions and reexaminations shall be reported to the Congress."

This provision will serve to alleviate some of the fears of city officials that much of the temporary housing now being erected in their cities may be left as "eyesores" for many years after the termination of the War. This section was not intended as an indication that the Congress believed such temporary structures have been erected in violation of local ordinances, so no such conclusion can be drawn from the adoption of this provision. In many instances cities have consented to erection of such temporary housing by granting variances from their zoning ordinances.

Conclusions

It would seem that the amendment to the Lanham Act of January 21, 1942, which is quoted *supra*, was intended to change the legal situation which existed in the *Sanders* case, *supra*, and subject FPHA to the regulations prescribed in city zoning and building ordinances except in extraordinary cases where the factual situation renders this not practicable. It is not believed that the Second War Powers Act, upon which the Court in the *Brodie* case, *supra*, relies, intended to refer to state and local building and planning legislation when it used the term "law." This particular section of that Act was adopted by the Congress to expedite the procedure for condemnation of land. It is certain that the Congress did not intend to nullify the amendment to the Lanham Act just referred to. The Supreme Court of the United States has said:

"A thing which is within the intention of the makers of a statute is as much within the statute as if it were within the letter; and a thing which is within the letter of a statute is not within the statute unless it be within the intention of the makers." *Barrett* v. *Van Pelt*, 268 U. S. 85, 90-91.

A careful examination of the hearings on the Second War Powers Act reveals no reference to FPHA or the Lanham Act or housing projects, but indicates that the chief intent of the Congress in adopting the particular sections was to extend to the Navy and other Federal agencies the Army's right to take immediate possession of property and let the condemnation proceedings be completed later. Attorney General Biddle, who drafted the Act, explained it to the Committee on the Judiciary of the House of Representatives as follows:

"The principal usefulness of the authority conferred by this statute is in the fact that immediate possession and use may be taken of property without the necessity of completing condemnation proceedings and without taking title. The Navy Department, in particular, has as much need for the swift acquisition of property as the War Department which already has this power."

As Attorney General Biddle states, in the past no occupation, use, or improvements of land taken in condemnation proceedings could be made until title finally cleared, so this provision of this Second War Powers Act is not a nullification of the Lanham Act requirement that FPHA conform to local ordinances and Courts should not read that construction into it. The Second War Powers Act, by referring to occupation, use and improvements, merely intends to cure this old condemnation procedure defect, and the reference to "law" clearly means "condemnation law" only. By no stretch of the imagination should one lift this Act over to the Lanham Act and claim that it nullifies FPHA's congressionally imposed obligation to comply with local building and zoning ordinances.

Existing Federal legislation should therefore, subject to the one exception, be construed as requiring compliance with local zoning and building ordinances by the Federal Public Housing Authority. This only exception is specified by the Congress as those instances in which it is not "practicable" to conform to local ordinance requirements as to location and design of housing. It is certain that the FPHA was not intended by the Congress to be the sole judge of what is "practicable" and that local officials who are familiar with local conditions and local needs were to have an equal, if not greater, voice in passing upon the extraordinary cases when local ordinances could be violated. If FPHA had been intended as the sole judge of what is "practicable," the Congress certainly would have vested absolute discretion in FPHA rather than use the mandatory language found in the Lanham Act, and in fact if FPHA was to decide all such cases according to its own idea there was no reason for the Congress to adopt this amendment.

It is submitted that the decisions of the Federal District Court of Virginia and the Federal District Court of Pennsylvania, which are cited above, are erroneous in that they are not determined on the factual basis of whether the particular projects could practicably be located or constructed according to local requirements, with the burden of proof on FPHA as it is the one seeking to escape the mandatory requirements of the Lanham Act. Those decisions are based on legal interpretations of the Federal statutes cited rather than this factual basis, and it is not believed that the Congress intended such a result.

A Basic Decision Limiting Real Property Rights

THE California Supreme Court, in a 5 to 2 decision issued on June 1, 1943, in the matter of *Mercury Herald Co.* v *Moore*, reversed its previous interpretation of private real property rights and, according to the minority opinion handed down on June 1, it reversed previous decisions that have been "the law of this state from an early period."

Following the enactment of several "moratorium" statutes, every two years since 1933 (which had the effect of prohibiting activity by tax-deed purchasers, and causing a serious deficit in the collection of revenues needed by the counties and other local governments which were dependent on the collection of taxes from those holding title to real property), the Legislature in 1941 passed a law which placed a definite time limit within which such taxes must be paid, where the law before contained none.

The question presented in this *Mercury Herald* v *Moore* case was whether the Legislature exceeded its constitutional authority, when it enacted this 1941 statute. In its first opinion, the Court ruled that the 1941 statute was unconstitutional. That was on December 31, 1942. A petition for a rehearing was promptly filed. It was granted. New briefs were filed by numerous counsel, followed by oral arguments.

The decision of June 1, 1943, consists of four separate opinions, each one of them differing from the other, but three of them agree on the basic question of the power of the state to compel the payment of taxes due, by those holding real property, while the dissenting opinion signed by two of the justices adheres to a contrary point of view.

These decisions are worth a careful reading as they disclose the difficulty that judges are experiencing in this field of the law, and that the common notion about the nature of the property in a title deed to land is not shared by our highest courts.

There are several million acres and several hundred thousand subdivision lots in California much more than five years tax delinquent, which must now revest in the state, as owner. The last Legislature under Governor Olson set up a State Land Classification Commission to classify and administer any and all such land escheating to the state, but it was abolished by the Legislature just adjourned under the new Governor, Earl Warren. Thus, these lands may well become a "no-man's land" —and whose duty it will be to administer and protect the interest of all the people in them will be interesting to watch.

J. RUPERT MASON.

San Francisco, June 4, 1943.

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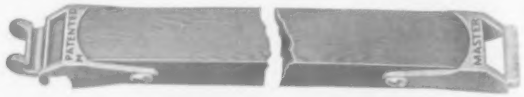

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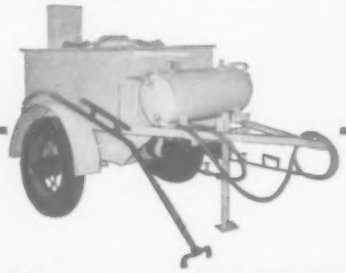

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National Institute for Commercial and Trade Organization Executives. Annual Session. (Northwestern University.) Sec.-Treas., Clarence R. Miles, 38 S. Dearborn St., Chicago, Ill.

August 16-18—Cedar Rapids, Iowa
League of Iowa Municipalities. Annual Convention. (Hotel Montrose.) Sec.-Treas., Frank G. Pierce, Marshalltown, Iowa.

August 31-Sept. 3—Chicago, Ill.
International Association of Fire Chiefs. Annual Convention. (Palmer House.) Sec., Daniel B. Tierney, 8 Robbins Rd., Arlington, Mass.

Sept. 2-3—Ogden City, Utah
Municipal League of Utah. Thirty-Sixth Annual Convention. (Hotel Ben Lomond.) Sec., Tom McCoy, Public Safety Bldg., Salt Lake City, Utah.

Sept. 10-14—Chicago, Ill.
International City Managers' Association. Annual Conference. (Edgewater Beach Hotel.) Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago, Ill.

Sept. 14-15—Milwaukee, Wis.
Wisconsin Chiefs of Police Association. Annual Conference. (Hotel Pfister.) Sec., R. K. McCarty, Kaukauna, Wis.

***Sept. 15-16—Mitchell, S. D.**
League of South Dakota Municipalities. Annual Convention. (Hotel Lawler.) Sec., S. S. Shaw, University of South Dakota, Vermilion, S. D.

***Sept. 15-16—Mitchell, S. D.**
South Dakota Water and Sewage Works Conference. Annual Meeting. Sec., E. R. Mathews, State Board of Health, Pierre, S. D.

***Sept. 15-17—Mammoth Cave, Kentucky**
Kentucky Municipal League. Annual meeting. (Mammoth Cave Hotel.) Exec. Sec., Carl B. Wachs, University of Kentucky, Lexington, Ky.

Sept. 15-17—Lake Placid, N. Y.
Municipal Electric Utilities Association of New York State. Annual Conference. (Lake Placid Club.) Sec., T. J. McKee, 200-212 East Third St., Jamestown, N. Y.

Sept. 16-17—Denver, Colo.
American Water Works Association—Rocky Mountain Section. Annual Meeting and Wartime Conference. (Hotel Cosmopolitan.) Sec., O. J. Ripple, Superintendent Filtration, Littleton, Colo.

Sept. 19-22—Chicago, Ill.
American Cemetery Owners' Association. Annual Business Meeting. (Hotel Morrison.) Vice-pres., Roy Hatten, 408 South Oak Park Ave., Oak Park, Ill.

Sept. 20-22—Wichita, Kans.
League of Kansas Municipalities. (Hotel Broadview.) Exec. Sec., John G. Stutz, Capitol Federal Bldg., Topeka, Kans.

Sept. 22-23—Pittsburgh, Pa.
American Water Works Association—Western Pennsylvania Section. Annual Meeting. (Roosevelt Hotel.) Sec., E. P. Johnson, 418 Flannery Bldg.,—Station 13, Pittsburgh, Pa.

Sept. 26-28—Roanoke, Va.
League of Virginia Municipalities. Annual Conventfon. (Hotel Roanoke.) Exec. Sec., Harold I. Baumes, 902 Travelers Bldg., Richmond, Va.

***Sept. 27-29—Cleveland, Ohio.**
International Municipal Signal Association, Inc. Annual Meeting. (Hotel Statler.) Sec., Irvin Shulsinger, 8 East 41st Street, New York, N. Y.

Sept. 28-29—Boston, Mass.
New England Water Works Association. Annual Meeting. (Hotel Statler.) Sec., Frank J. Gifford, 613 Statler Bldg., Boston, Mass.

Sept. 29-Oct. 1—Chicago, Ill.
National Association of Assessing Officers. Tenth National Conference on Assessment Administration. (Hotel Morrison.) Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago, Ill.

Sept. 30-Oct. 1—Binghamton, N. Y.
American Water Works Association—New York Section. Fall War Conference. (Hotel Arlington.) Sec.-Treas., R. K. Blanchard, 50 W. 50th St., New York, N. Y.

Oct. 5-7—Chicago, Ill.
National Safety Council. 32nd National Safety Congress & Exposition. (Hotels Sherman, LaSalle and Morrison.) Exec. Vice-Pres., Ned H. Dearborn, 20 North Wacker Drive, Chicago, Ill.

***Oct. 5-7—Grand Forks, N. D.**
North Dakota Water and Sewage Works Association. 15th Annual Convention. (Hotel Ryan.) Sec., K. C. Lauster, Bismarck, N. D.

Oct. 11-15—Oklahoma City, Okla.
American Water Works Association—Southwest Section. Wartime Conference. (Hotel Biltmore.) Sec., George J. Rohan, Supt. Water Works, Municipal Bldg., Waco, Texas.

Oct. 12-14—New York, N. Y.
American Public Health Association. Wartime Public Health Conference and 72nd Annual Business Meeting. (Hotel Pennsylvania.) Exec. Sec., Dr. Reginald W. Atwater, 1790 Broadway, New York, N. Y.

Oct. 12-14—St. Louis, Mo.
Civil Service Assembly of the United States and Canada. Annual Conference on Public Personnel Administration. (Hotel Statler.) Dir., James M. Mitchell, 1313 E. 60th St., Chicago, Ill.

***Oct. 13-14—Peoria, Ill.**
Illinois Municipal League. 30th Annual Convention. (Pere Marquette Hotel.) Exec. Sec., A. D. McLarty, 537 So. 4th Street, Springfield, Ill.

Oct. 13—New York, N. Y.
Illuminating Engineering Society. Annual Meeting. (Hotel New Yorker.) Exec. Sec., Frank G. Horton, 51 Madison Ave., New York, N. Y.

***Oct. 14-16—Philadelphia, Pa.**
American Water Works Association—Four States Section. Joint Meeting with the Pennsylvania Water Works Operators' Association. (Benjamin Franklin Hotel.) Sec., Lloyd Nelson, 1624 Lincoln-Liberty Bldg., Philadelphia, Pa.

***Oct. 14-15—San Antonio, Texas**
League of Texas Municipalities. Annual Convention. (Gunter Hotel.) Exec. Dir., E. E. McAdams, 2223 Guadalupe Street, Austin, Texas.

Oct. 15-16—Des Moines, Iowa.
American Water Works Association—Missouri Valley Section. (Hotel Ft. Des Moines.) Sec., Earle L. Waterman, Room 104, Engineering Hall, University of Iowa, Iowa City, Iowa.

***Oct. 17—York, Neb.**
League of Nebraska Municipalities. War Conference of City Officials. (Hotel McCloud.) Sec.-Treas., C. E. Beals, 310 Continental Bank Bldg., Lincoln, Neb.

Oct. 19-20—Milwaukee, Wis.
American Water Works Association—Wisconsin Section. Wartime Water Works Conference. (Hotel Plankinton.) Sec., Leon A. Smith, City Hall, Madison, Wis.

Oct. 19-21—Sacramento, Calif.
League of California Cities. Annual Conference. (Hotel Senator.) Sec.-Treas., Chas. Schwanenberg, City Manager, Oakland, Calif.

Oct. 21—Springfield, Ill.
Illinois Association of Park Districts. Sixteenth Annual Convention. Exec. Dir., A. D. McLarty, 537 E. 4th St., Springfield, Ill.

Oct. 21-23—Chicago, Ill.
Federation of Sewage Works Associations. Wartime Sanitation Conference; Joint Meeting with the Central States Sewage Works Assn. (Hotel Sherman.) Sec., W. H. Wisely, Box 18, Urbana, Ill.

Oct. 21-23—Chicago, Ill.
Central States Sewage Works Association. Joint Meeting with the Wartime Sanitation Conference of the Federation of Sewage Works Associations. (Hotel Sherman.) Sec.-Treas., J. C. Mackin, Route 4, Madison, Wis.

Oct. 24-27—Chicago, Ill.
American Public Works Association. Annual Meeting and 1943 Public Works Congress. (Hotel Sherman.) Exec. Dir., Norman Hebden, 1313 E. 60th St., Chicago, Ill.

Oct. 24-27—Pittsburgh, Pa.
National Association of Commercial Organization Secretaries. War Conference. (Hotel William Penn.) Asst. Sec.-Treas., Mrs. Norma McKellops, 1615 H St., N. W., Washington, D. C.

***Oct. 25-26—Jefferson City, Mo.**
Missouri Water and Sewerage Conference. (Governor Hotel.) Sec.-Treas., W. A. Kramer, State Board of Health, Jefferson City, Mo.

Oct. 27-29—Chicago, Ill.
The American Municipal Association. Annual Conference. (Hotel Blackstone.) Exec. Dir., Earl D. Mallery, 1313 E. 60th Street, Chicago, Ill.

Oct. 27-29—Los Angeles, Calif.
American Water Works Association—California Section. Annual Meeting. (Hotel Biltmore.) Sec., H. Arthur Price, Box 3669, Terminal Annex, Los Angeles, Calif.

Oct. 28-29—Niagara Falls, Ont., Canada
The Canadian Institute on Sewage and Sanitation. Annual Convention. (Hotel General Brock.) Sec.-Treas., Dr. A. E. Berry, Dept. of Health, Parliament Bldg., Toronto, Ont., Canada.

* First appearance of notice on this page.

Municipal Bond Market

Some recent sales of new issues as reported in July issues of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$2,650,000	Ravenna, Ohio, Street Improvement	0.75	2.66 Avg.	0.734
140,000	Lower Merion Tp., Pa., School	1.0	1-10 Ser.	0.74
148,000	Paterson, N. J., General Improvement	0.75	3 Avg.	0.75
100,000	New Britain, Conn., Sewer Fund	1.0	2-11 Ser.	0.81
150,000	La Grosse, Wis., Airport	1.0	1-10 Ser.	0.809
266,000	Lincoln, Nebr., Refunding	1.0	4-5-5 O.-A.	0.855
108,000	Wyandotte, Mich., Water-Works Extension	5.0	5.35 Avg.	0.967
191,000	Quincy, Ill., Airport and Landing Field	2.0	9.75 Avg.	1.005
125,000	Muskogee, Okla., Public Park	1.12	6.5 Avg.	1.109
320,000	Mt. Lebanon Tp., Pa.	1.25	1-20 Ser.	1.205
128,000	Galesburg, Ill., Water Revenue	1.25	14.25 Avg.	1.344
279,000	Scranton, Pa., School	1.75	10.5 Avg.	1.60
117,000	Maplewood Tp., N. J., General Improvement	4.0	20.85 Avg.	1.81
425,000	Birmingham, Ala., Capital Improvement Refunding	2.0	12.16 Avg.	1.899
116,000	East Orange, N. J., School	3.0	22 Avg.	1.91
1,070,000	Nevada Irrigation District, Calif., Special Revenue and General Obligation	3.0	10.5-16 O.-A.	2.416
151,000	Perry Co., Ky., Road and Bridge Refunding	3.5	10-40 Opt.	3.148

Municipal and Civic Publications

City Financial Survey

Administrative and Fiscal Survey of the Government of the City of Wichita, Kans.—J. L. Jacobs & Company, Chicago, Ill. 1942. Sections 1, 2, and 3—130 pp., mimeo. Section 4—85 pp., mimeo. Section 5—66 pp., mimeo.

Detailed report of a survey which was made with the main objective of developing constructive recommendations for improvements and economies in the Wichita government, through unifying and streamlining the administrative organization and procedures and through establishing a standardized system of budgetary accounting and reporting and payroll control in all city departments. Summary findings as well as recommendations are presented.

Baltimore Recreation Plan

Long-Range Recreation Plan—City of Baltimore.—Prepared for the Commission on City Plan by Weaver W. Pangburn, Field Representative and F. Ellwood Allen, Specialist in Areas and Facilities, of the National Recreation Association. Department of Public Recreation, 1129 North Calvert Street, Baltimore, Md. 1943. ix + 100 pp.

Presentation of a long-range recreation plan for the city of Baltimore, the principal recommendation of which is that the city undertake a long-range plan for the systematic acquisition or development of property to meet the lack of both large and small neighborhood recreation areas and facilities. Outlines procedure and method and gives basic and supporting data.

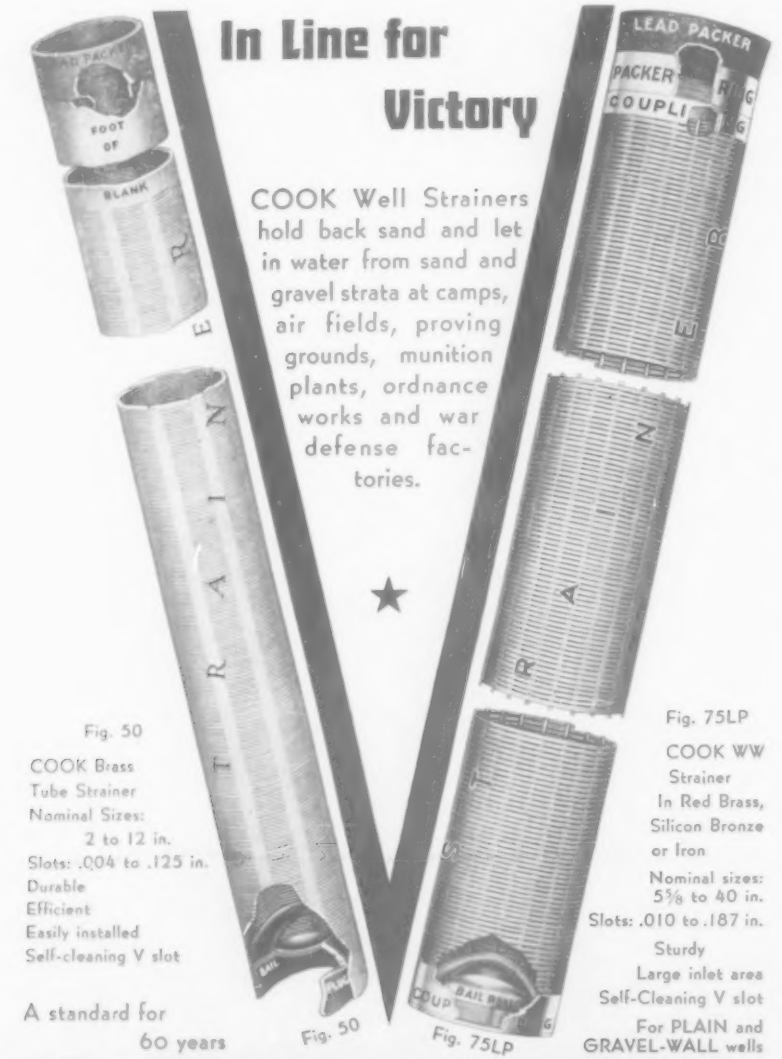
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Fig. 50
Fig. 75LP
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Municipal Legal Problems

Three publications of the National Institute of Municipal Law Officers, 730 Jackson Place, N. W., Washington, D. C.

Municipal Regulation of Dogs—Model Ordinance Annotated.—Prepared by Charles S. Rhyne. 1943. 18 pp., mimeo. $2.00.

A study which will give busy city attorneys many of the answers to questions they may be confronted with in municipal regulation of dogs. Reviews court decisions bearing on this problem, analyzes fifty municipal dog ordinances, presents a model ordinance, with annotations, for the licensing and regulation of dogs, and a model ordinance to protect victory gardens from dogs.

Municipal Curfew for Minors—Model Ordinance Annotated.—Prepared by Charles S. Rhyne. 1943. 32 pp., mimeo. $2.00.

Comprehensive report dealing with the subject of municipal curfew for minors, which makes numerous references to all pertinent material and court decisions concerning the legal problems created by such a curfew. Contains a model, annotated ordinance on the subject.

Firemen and The Law.—Prepared by Charles W. Bahme. 1943. 62 pp. $2.00.

A comprehensive survey of the legal powers, rights, and duties of city firemen and fire departments. The material combines practical and legal information, and should be a contribution to the efficiency of municipal fire department administration by helping to clear up uncertainties in the legal field which may have hindered firemen in the performance of their duties in the past.

Methods of Augmenting Revenue

Increasing Municipal Revenues.—Schenectady Bureau of Municipal Research, Inc., 10 Jay Street, Schenectady, N. Y. 1943. 21 pp., mimeo.

A statement of findings in respect to the problem of securing additional methods of financing the government of Schenectady. Concludes that a combined income-payroll tax and a local vehicle tax of from two to five dollars per year would do much to solve the problem.

Purchasing Procedure

Governmental Purchasing.—By C. A. Bratton. Department of Agricultural Economics, New York State College of Agriculture, Cornell University, Ithaca, N. Y. 1943. 9 pp., mimeo.

A discussion of various aspects of governmental purchasing, including the legal provisions involved, existing procedures, the essentials of an adequate purchasing system, and purchasing for rural counties. Also includes a brief history of centralized purchasing.

Report on a Municipal Airport

LaCrosse Airport Analysis.—Prepared by the LaCrosse Citizens Airport Committee in collaboration with the Wisconsin State Planning Board. 1943. 45 pp.

A plentifully illustrated report and analysis of the LaCrosse Airport, containing a description of the city itself as well as the airport site, and a discussion of the airport's commercial and military values. Detailed appendices and numerous maps.

Planning for Post-War Housing

The Niagara Frontier Plans for Peace.—National Committee on the Housing Emergency, Inc., 512 Fifth Avenue, New York City. 1943. 27 pp., offset. 25c.

Report describing in detail how the Erie County Post-War Survey Committee is proceeding with its program of planning for the redevelopment of its outmoded urban neighborhoods and of studying its post-war housing needs. Findings of the preliminary studies are illustrated by means of numerous graphs and charts.

Evidence Information for Police

The Evidence Handbook for Police.—By Franklin M. Kreml, Director, Northwestern University Traffic Institute and Safety Division, International Association of Chiefs of Police. Edited by David Geeting Monroe, Director of Research and Information, Northwestern University Traffic Institute. 1943. *ix + 148 pp.* $2.00.

The purpose of this book is to aid the police officer in gathering admissible evidence and in preparing it for presentation in court. Lists and discusses the principal types of evidence and the rules governing them.

Regional Planning Progress

A Decade of Regional Planning in New England.—New England Regional Planning Commission and National Resources Planning Board, Region 1, 2100 Federal Building, Boston, Mass. 1943. *31 pp., mimeo.*

A record of planning accomplished in the New England region and an indication of what planning will do for New England in the future. Gives the history of the New England Regional Planning Commission, an outline of the plans completed, an estimate of the employment situation, and recommendations for future regional planning.

A Wartime Public Works Department

Gearing for War—A Study of the Department of Public Works.—By J. M. Leonard, Detroit Bureau of Governmental Research, and L. N. Woodworth, Civic Research Institute, Kansas City, Mo. 1943. *55 pp.*

A report, the chief concern of which is to indicate possible means by which the entire public works department of Kansas City can best meet wartime problems. Many suggestions of this study (especially the recommended organizational changes) apply equally well, however, to peacetime conditions—particularly to post-war problems with which the department will be faced.

Rehabilitation Activities

Rehabilitation in Boston—Vol. 11.—City Planning Board, 43 City Hall, Boston, Mass. 1943. *ix + 54 pp., offset.*

A progress report covering the activities of the Boston City Planning Board for the past year in continuing the rehabilitation studies begun in 1941. Gives a detailed discussion of the New York Streets area, presents various proposals as to population density, size, etc., covers redevelopment legislation and the question of expense and income of the redevelopment agency, and makes suggestions as to type and location of projects and as to policy of the city on rehabilitation.

Building Standards

Uniform Building Code—1943 Edition.—Pacific Coast Building Officials Conference, 124 West Fourth St., Los Angeles, Calif. 1943. *322 pp.* $2.00.

Detailed uniform building code, with administrative and legislative provisions, requirements based on occupancy and types of construction, engineering regulations, quality, and design of the materials of contruction, detailed regulations, fire-resistive standards for fire protection, regulations for use of public streets and projections over public property, plastering, and special subjects such as film storage and mechanical refrigeration.

Report of Liquor Study

Report of the State of Michigan Liquor Study Commission.—Michigan Liquor Study Commission, Lansing, Mich. 1943. *35 pp.*

Report of a study of the liquor situation in Michigan, as a result of which the Liquor Study Commission makes two principal suggested corrections—(1) stricter enforcement and more severe penalties for violations; and (2) return to the original principles upon which the present liquor law was based (which the Commission recommends); or continue the present trend to its logical and fair conclusion—which the Commission believes will result in changing Michigan into a license state.

War Housing Bibliographies

Two bibliographies compiled by Elizabeth C. Carey, Office Service Division, Library, National Housing Agency, Federal Public Housing Authority, Washington, D. C. 1943.

War Housing.—13 pp., mimeo.

A selection of references dealing with war housing in general, and in the United States and Great Britain, which appeared during 1941 and 1942 and through April 1943. Technical references are omitted. Divided according to topics.

Prefabrication.—5 pp., mimeo.

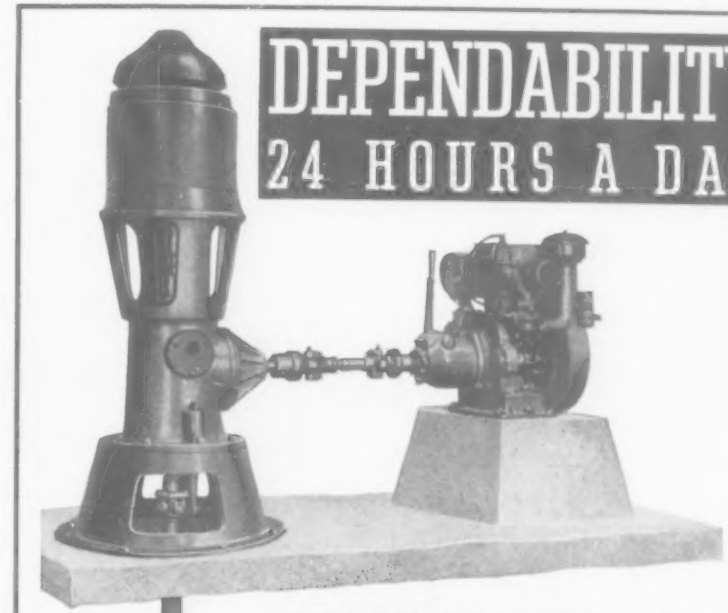
Annotated bibliography of references, appearing over the same period of time as the above bibliography, which lists material showing the development of prefabrication methods and their application to war housing.

Economics of Post-War World

Post-War Economic Problems.—Edited by Seymour E. Harris. McGraw-Hill Book Co., Inc., New York City. 1943. *xii + 417 pp.* $3.50.

A book which presents a discussion of post-war economic problems, with contributions from some of the foremost economists of the nation. Deals with such topics as: the issue of full employment; the state of capitalism; statistical information and economic policy; fiscal and related problems; labor and social security; agriculture and related problems; international economic relations; and post-war controls.

The chapters, "Problems of Planning Public Work," "City Replanning and Rebuilding," and "Fiscal Policy at the State and Local Levels," have particular significance for readers of THE AMERICAN CITY.



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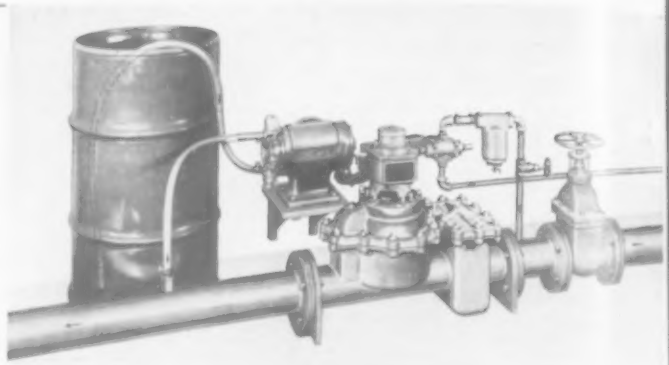

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Housing Project Activities

Two publications of the Federal Public Housing Authority, Region V, 2073 East Ninth St., Cleveland 15, Ohio.

Planning and Operating the Playground Program.—1943. 24 *pp., mimeo.*

A bulletin designed to acquaint Federal Public Housing Authority management and sponsoring tenant groups, working in close cooperation with appropriate local agencies, with the objectives, scope, and breadth of a well-planned summer playground program.

Volunteer Leadership.—1943. 10 *pp., mimeo.*

A bulletin dealing with the problem of leadership for housing project service activities, which serves as a guide to management and sponsoring tenant groups, working cooperatively with community agencies, in order that every possible resource may be utilized.

Progress in Social Hygiene

Social Hygiene Year Book—1942.—*Edited by Jean B. Pinney. American Social Hygiene Association,* 1790 *Broadway, New York City.* iv + 241 *pp.* $1.00.

A summary of social hygiene activities carried on by state and community agencies and groups, which provides a record of the progress made—in the various states and possessions as well as by national official and volunteer agencies—in fighting venereal disease and prostitution racketeers, and in keeping up the long-range educational and community programs which must sustain national health and morale when the war is over.

Tax Exemption of New Industries

Is New Industry Tax Exemption Effective?—South Carolina State Planning Board, Columbia, S. C. 1943. 36 *pp.*

Report of a study of the practice and effect of tax exemption of new industries in several South Carolina counties and several states. Also contains industrial statistics, records of assessed values, and information on the growth of manufactured products, as well as a discussion of the fundamental factors for industry location and removal, as noted from various sources.

War Worker Recreation

Recreation for War Workers.—National Recreation Association, 315 *Fourth Ave., New York City.* 1943. 72 *pp.* 35c.

A booklet which suggests, in simple terms, ways in which recreation can help workers in war plants to get the most out of their leisure time. Purpose is to present to recreation directors of plant programs, to employee groups, and to management, helpful examples of undertakings which have proved successful in many war production communities, as well as sources of information to supplement in a more specific way the general topics included.

Post-War Rehabilitation

The Role of the Municipalities in Post-War Rehabilitation.—By George S. Mooney, on behalf of the Canadian Federation of Mayors and Municipalities. 1943. 15 *pp.*

A brief adopted by the Canadian Federation of Mayors and Municipalities at its Conference in May, 1943, which is intended to stimulate interest in the problems of urban post-war reconstruction, particularly as they affect municipal administration and finance. Covers the scope and nature of local public works, housing, and urban blight and slums.

Planning for Improvement of Library Service

Post-War Standards for Public Libraries.—American Library Association, Chicago, Ill. 1943. 92 *pp.* $1.50.

A compilation of public library standards in regard to service, government and administration, size and area, finance, buildings, book collection personnel and technical processes—intended for use by state and city planning officials, by library surveyors, library boards, and other groups in evaluating the library service of individual cities, counties, and states.

Rehabilitation of Blighted Areas

American Cities After the War—A Plan for the Elimination of Blighted Areas.—Prepared by Walter J. Mattison, City Attorney of Milwaukee, Wis. National Institute of Municipal Law Officers, 730 *Jackson Place, Washington, D. C.* 1943. 19 *pp., mimeo.* $2.00.

Preliminary Report No. 1 of the Committee on Post-War Planning of the National Institute of Municipal Law Officers, in which it presents an over-all discussion of planning for the rehabilitation of blighted areas. Discusses the problem of financing, and describes the plans being made by various cities and groups.

Appraising City Budget

Budgeting—A Civic Guide to Economy in Municipal Government.—The Tax Foundation, 30 *Rockefeller Plaza, New York City.* 1943. 18 *pp.*

A guide which has been prepared to help the citizen to find out where his tax dollar goes. Gives illustrations of unsound budget practices, and discusses budget preparation, approval, and execution, as well as appraisal of municipal budget systems.

Highway Land—Acquisition

Public Land Acquisition for Highway Purposes.—By David R. Levin, Transportation Economist, Public Roads Administration, Federal Works Agency, Washington, D. C. 1943. 32 *pp.* 10c.

This pamphlet looks into the highway land-acquisition difficulties constituting the right-of-way problem. It outlines some of the criteria of an effective public-land acquisition policy, indicates generally to what extent present state practices conform with these standards, and suggests general principles as a guide to the removal of the obstacles inherent in present technique.

Philadelphia Housing Projects

Art Jury—Thirty-Second Annual Report—1942.—Art Jury, Philadelphia, Pa. 1942. 33 *pp.*

An illustrated report describing and making suggestions in regard to various Philadelphia planning and housing projects.

Other Reports Received

A Study of the Frequency of Disasters.—The American National Red Cross, Washington, D. C. 1943. 19 pp., offset.

ALLIANCE, NEBR.—Annual Report, calendar year 1942. 38 pp.

BAY CITY, MICH.—Annual Report of the City Planning Commission, 1942-1943. 7 pp.

BIRMINGHAM, ALA.—Social and Economic Survey for 1940, sponsored by Housing Authority of the Birmingham District. 1943. 72 pp.

BOULDER, COLO.—City Manager's Report for the year 1942. Unpaged, offset.

DURHAM, N. C.—"Planning the Future." A Capital Improvement Program prepared for the City Council and Citizens by Henry A. Yancey, City Manager. 1943. 44 pp.

HONOLULU, HAWAII.—Report of the City Planning Commission, 1942. 29 pp., mimeo.

LEWISTON, MAINE.—Municipal Activities, 1942-1943. 53 pp.

MINNEAPOLIS, MINN.—"Post-War Planning." City Planning Commission, Minneapolis, Minn. 1943. 56 pp.

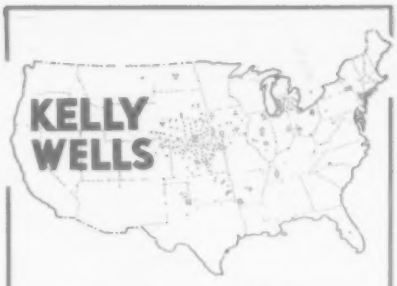
NEW ORLEANS, LA.—Annual Report to the Commission Council from its advisory body, the City Planning and Zoning Commission, for the year 1942. 29 pp., offset.

NEW YORK, N. Y.—Annual Report, Office of the Sheriff, 1942. 40 pp.

SACRAMENTO, CALIF. — "Sacramento Business Barometer." Sacramento Chamber of Commerce. 1943. 15 pp.

VIRGINIA.—"Curfew Ordinances in Various Virginia Cities and Towns." League of Virginia Municipalities, 902 Travelers Building, Richmond, Va. 1943. 25c.

WICHITA, KANS.—Personnel Manual. City of Wichita, Kans. 1943. 31 pp.



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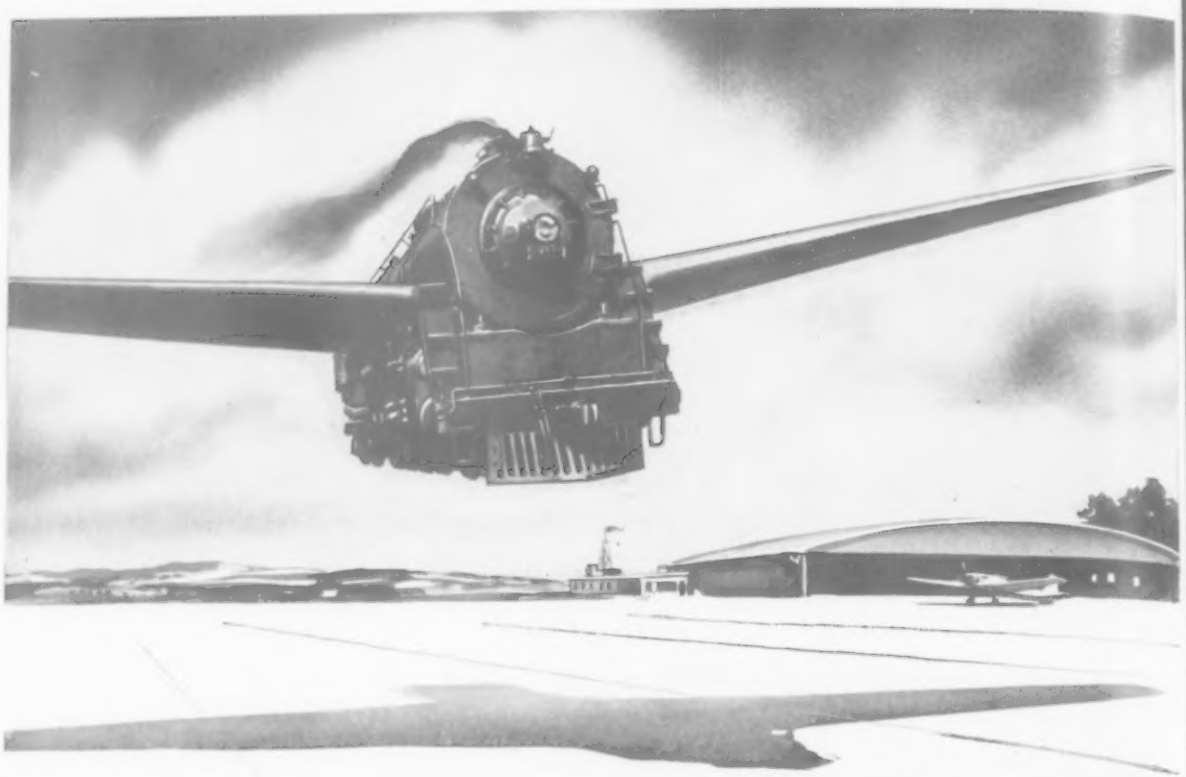

LOCOMOTIVES CAN'T FLY, BUT -

Engineers responsible for designing airport runways know that some modern planes—heavy bombers and transports—have wheel loads greater than the wheel loads of the heaviest steam locomotives. Runways safe for landings and take-offs with such wheel loads require pavement of unquestioned load-carrying capacity.

Looking ahead to even heavier planes, Portland Cement Association engineers have prepared design tables for wheel loads of more than 150,000 lb. These tables, giving engineering design formulas for any load, are available to all designers of airport pavement for present or post-war needs.

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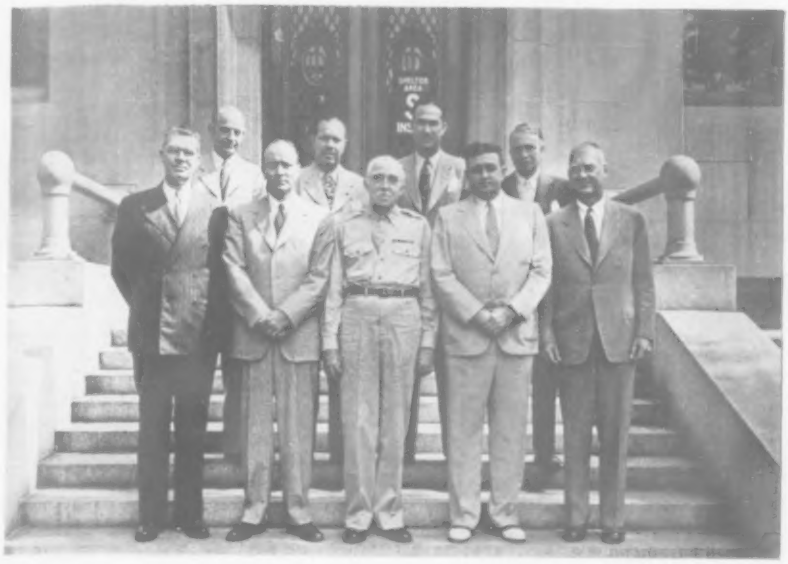
News and Illustrations

Items of Interest to City, Town and County Officials and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Federal Works Administrator and His Regional Aids



FEDERAL WORKS AGENCY PHOTO

A snapshot of Maj. Gen. Philip B. Fleming, Administrator of the Federal Works Agency, and his regional aides, taken in Washington recently during a conference on war public works programs. Left to right the conferees are (top row) C. W. Anderson, Region 6, St. Paul; Oliver T. Ray, Region 3, Atlanta; Rex Nicholson, Region 7, Berkeley; John M. Gallagher, Region 1, New York; (bottom row) Lawrence Gillette, Region 4, Chicago; Baird Snyder, Asst. Administrator; General Fleming; Kenneth Markwell, Region 2, Richmond; James W. Bradner, Jr., Region 5, Ft. Worth.

Plan for Anti-Freeze Protection Now

In normal times an ideal practice is to install a fresh inhibited anti-freeze each season, but for the duration of the war it is essential to save these critical materials as long as possible without endangering the life of the cooling system parts through rust-logging, corrosion, overheating, and freeze-up.

The following procedure has been suggested by the engineers of the National Carbon Co., Inc., 30 East 42nd St., New York, makers of "Prestone" anti-freeze. It is especially addressed to those who have had their used anti-freeze solution in storage during the summer. The directions, the National Carbon specialists point out, are general in character and should not supersede special recommendations from anti-freeze of vehicle manufacturers.

Determine if the anti-freeze solution in the cooling system is one of the recommended types, which are alcohol and ethylene glycol. If the anti-freeze is found to be a deleterious salt or oil type, it should be drained and discarded immediately, and the cooling system should be thoroughly cleaned and flushed.

Check the solution with a suitable anti-freeze tester and record the temperature to which it is protected. Very weak solutions may not be worth saving.

Drain the cooling system, using a clean container to catch the solution if it is suitable for further use.

If the radiator looks rusty or greasy inside, clean the cooling system with a reputable, dependable cleaner. Whether or not a cleaner is found necessary, the system should at least be thoroughly flushed with water.

With the cleaning solution in the system or while flushing with water, thoroughly inspect for leaks.

Tighten all connections and joints, and replace defective hose, clamps, gaskets, fan belts, and other points where leakage may occur.

Fill the cooling system with water and add a suitable rust-inhibitor to prevent corrosion during war-weather driving.

Solution suitable for further use should clear up upon standing, or settle out practically water-white or with at least a trace of the original color. If the solution is to be stored, use clean, labeled and sealed containers, preferably glass or earthenware.

Before stored solution is returned to the cooling system in the fall, it should be tested again for anti-freeze strength. A special reinhibitor made and recommended by a reputable manufacturer should be added. If necessary to increase the freezing protection, fresh material, preferably of the same brand, should be added.

When anti-freeze is used for more than one winter, it should receive more than normal inspection and test, and if the solution becomes brown or rusty in the system and fails to settle out after standing, the solution should be discarded.

The mixing of different brands of anti-freezes in the cooling system should be limited where possible to those having the same basic materials, such as ethylene glycol or ethanol. Mixtures of ethylene glycol with alcohol cannot be correctly tested with a commercial anti-freeze tester.

Zechariah Chafee Dies; President, Builders Iron

Zechariah Chafee, president of Builders-Providence, Inc., 9 Codding St., Providence, R. I., died at his farm in Taunton, Mass., on July 8. He was 84 years old.

Mr. Chafee became president of Builders Iron Foundry in 1889, upon the death of his father, and as head of the business brought the Venturi meter manufacture to Providence. He also built up the grinding machine tool line which was sold under the name of the Diamond Machine Co.

Zechariah Chafee

Elected the first alumni trustee of Brown University in 1915, Mr. Chafee had served continuously as a trustee or fellow of the university and as a member of its executive and advisory committees. He was graduated from Brown University in 1880 where he was a member of the Alpha Delta Phi and Phi Beta Kappa fraternities.

Pittsburgh-Des Moines Builds Wind Tunnel

A new high-pressure wind tunnel, costing more than two million dollars, is under contract for erection by the Pittsburgh-Des Moines Steel Company, 3412 Neville Island, Pittsburgh, Pa.

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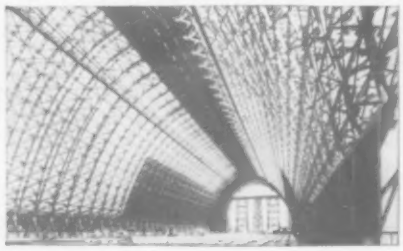
WRITE FOR TECO'S FREE LITERATURE AND LIST OF ENGINEERING SERVICES

3 MILLION FEET OF TIMBER BUILT THIS VAST NAVY HANGAR



Construction view of one of the Navy's mammoth new blimp hangars. Length 1,000 feet; clear-span width 237 feet; height 153 feet. Timber prefabricated by Timber Structures, Inc., Portland, Oregon.

The **TECO** *Ring Connector spreads the load on a timber joint over practically the entire cross-section of the wood . . . brings the full structural strength of lumber into play.*

WASHINGTON, D. C. **TIMBER ENGINEERING COMPANY** PORTLAND, OREGON

Atwell Transferred to Pittsburgh-National Brooklyn Office

D. Atwell, former New England representative for the Pittsburgh Equitable Meter and its National Meter Division, is now at the Brooklyn, N. Y., district office.

D. J. Atwell

Mr. Atwell will work under the supervision of J. W. Fleet, district manager, and will have charge of water meter sales and services in lower New York state, Long Island, and New Jersey.

Sheets Leaves Cleveland Staff

Charles J. Sheets, Commissioner of Streets for the City of Cleveland for the past six years, has resigned to become general manager of the Allied Corp., Cleveland paving contractors with offices in the Keith Bldg. Appointment of Mr. Sheets was announced by the Board of Directors effective June 1 and places him in active direction of the company. He succeeds M. J. Beistle, formerly president and general manager, who died recently.

The company is one of the largest in northern Ohio and has held extensive war contracts for asphalt road construction.

Badger Meter Awarded Army-Navy "E"

On June 8, the management and employees of the Badger Meter Co., Milwaukee, Wis., were presented with the Army-Navy "E" award for outstanding production of military material. Presentation was by Maj. F. D. Hansen, Officer in charge of the Milwaukee office, Chicago Ordinance District, and a speech of acceptance was given by C. W. Wright, president of the company. Lt. Com. M. E. Fraser, assistant resident inspector of Naval Materials, presented representative employees with lapel pins. These were accepted by Otto Yoost, speaking in behalf of the employees. A special congratulatory speech was delivered by W. J. Zimmers, Director of the company. He emphasized information received by letter from Under-Secretary of War Robert P. Patterson, which commended the outstanding production achievement.

C. W. Wright, president of the Badger Meter Mfg. Co., and W. J. Zimmers, director, together with a group of Army and Navy officers, display the recently won Army-Navy E burgee.

Renewal Parts for Electric Motors

Wartime service to the customer, tailored to meet the rigorous restrictions of material shortages, reaches a new high in completeness in the new bulletin issued by General Electric, Schenectady, N. Y., entitled "Renewal Parts and Supplies."

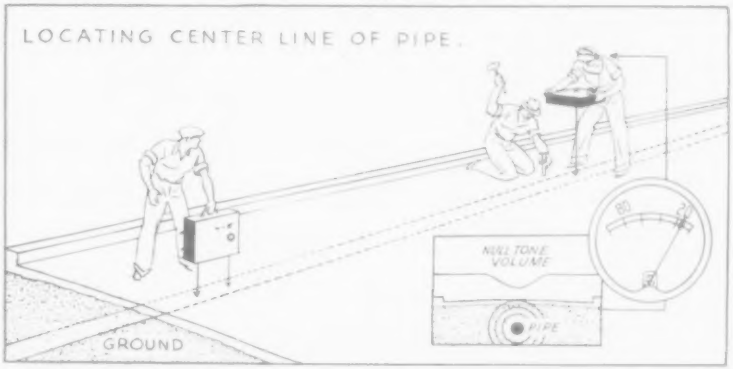
Avoiding any reference whatsoever to new equipment, the 94-page bulletin contains a complete inventory of renewal parts that are required most frequently; in many cases picturing them so that they will be easily identified by the customer. Detailed instructions are carried in the front of the book that will eliminate much of the confusion resulting from an order for a small part.

The purpose of the new catalog, say G. E. officials, is to save time and make it easier to order parts required to keep existing electrical equipment operating for the duration.

M-SCOPE

BURIED PIPE AND CABLE FINDER

solves—successfully—the varied problems involved in the development, operation and maintenance of buried pipe and cable systems.



It quickly locates the exact position of underground pipe lines, pipe bends, dead ends, valves, cast iron bells, stubs, service connections, etc.

**Watch for other uses in this series of AMERICAN CITY advertisements.*

FISHER RESEARCH LABORATORY

Direct Teletype by Postal Telegraph PALO ALTO, CALIF.

INCINERATION ENGINEERS

NICHOLS ENGINEERING & RESEARCH CORPORATION

60 WALL TOWER NEW YORK, N. Y.

Consultants • Designers • Constructors

FLASH!

WPB AUTHORIZES LIMITED NUMBER OF NEW HARLEY-DAVIDSONS FOR POLICE DUTY!

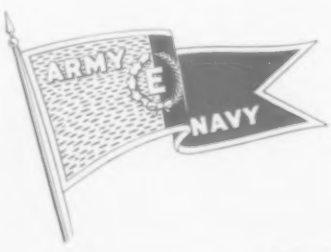
This action has been taken because of the vital need for additional and replacement motorcycles by police departments to cope with extra wartime problems. Many departments have more work on account of population increases due to war industries or proximity of military camps. Others have had to extend patrols to cover war plants and vital public services — and to handle troop or material convoys. Most police motorcycle equipment is overtaxed due to heavier work and loss of manpower — and in many cases, due to over-long use, equipment is beyond practical use for the exacting needs of police service.

If you need new Harley-Davidsons for any of these reasons, see your dealer at once for allotment information and type of motorcycle and equipment available.

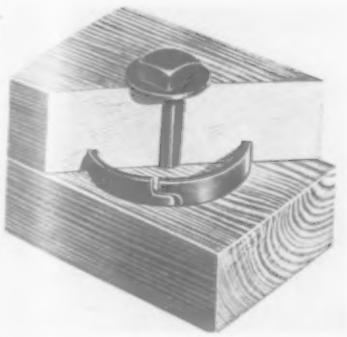
If there is no Harley-Davidson dealer near you, write us direct.

HARLEY-DAVIDSON MOTOR CO. • MILWAUKEE 1, WISCONSIN

HARLEY-DAVIDSON MOTORCYCLES



ON AMERICA'S FRONT LINES OF ACTION



A cut-away view of the Teco connector. Notice that the ring, instead of the bolt, carries the load between the two timbers. The bolt merely holds the wood in place.

How Does a Timber Connector Work?

Here is the principle back of the Teco connectors that are used in structural joints on timber construction and that have brought this type of work out of the realm of simple carpentry to well-designed engineering. Simply stated, the connector spreads the load over practically the entire cross section of the wood and brings the full structural strength of the timber into play.

More particularly, the split metal ring is installed with one-half of its depth in each contact face and transfers the load approximately in proportion to the relative size of the connector. It is this large bearing area of the connector against the wood near the surface of the timber that accounts for its high efficiency. Structurally, the greatest stress intensity is near the surface, and the connector serves to strengthen the joint at exactly that point.

With the connectors, it is now feasible to develop up to 100 per cent of the working stresses of the timbers. Such a high per cent of load transfer with bolts or nails alone is either expensive or impractical.

The Timber Engineer Co., a subsidiary of the National Lumber Manufacturers' Assn., 1319 18th St., N. W., Washington, D. C., has expended over $300,000 in research and design in developing the Teco connector to its present efficiency as an engineering implement.

Protect Municipal Property with Photoelectric System

A new photoelectric protection system, now available from Photoswitch, Inc., 77 Broadway, Cambridge, Mass., projects a fence of invisible light over distances as great as 1,500 feet and gives instant local or central-station alarm if an intruder enters the protected area. Designed to meet government requirements, the equipment has an operating range longer than that of any other photoelectric system and is especially suited to the protection of harbors, yards, docks, airports, and similar municipal areas.

In operation, Light Source Type L60M is aligned with Receiver Type A30M, to which it focuses a modulated beam of infra-red light. Because Type A30M responds only to the frequency of light emitted from the light source, it is not affected by other artificial light or by daylight. This permits extreme sensitivity, enabling the equipment to function over a greater range than it has been previously possible to cover with photoelectric controls, and at the same time guarantees complete stability of operation. If invisible infra-red light is not required, the operating range of the system exceeds 2,000 feet.

J. B. Peake Gets General Sales Duties

J. B. (Jun) Peake, formerly New York District Sales Manager, has been appointed Assistant General Manager of Sales for the Mathieson Alkali Works, Inc., 60 East 42nd St., New York City. In his new capacity, Mr. Peake will be assistant to D. W. Drummond, General Manager of Sales.

Mr. Peake joined the New York office of Mathieson Alkali Works in 1920, later being transferred to the Charlotte, N. C., district sales office from which point he opened and developed the Southwest territory.

APCO-V-APCO PRIMERS

AUTOMATIC POWER OR TANK PRIMERS

AIR RELEASE VALVES

FOR FILTER PIPE LINES DISTRIBUTION LINES AND OTHER USES

17 TYPES

VALVE AND PRIMER CORPORATION

Room 366—111 W. Washington St.
CHICAGO, ILL.

WATER AND SEWAGE TREATMENT EQUIPMENT

Accelators • Aerators
Accelo-Filters • Activators
Chemical Feeders
Coagulators • Clarifiers
Filter Plant Equipment
Hydraulic Controls
Lime Slakers
Recarbonators
Rotary Distributors
Sewage Samplers
Water Softeners

Write for Bulletins

INFILCO
INCORPORATED
Formerly INTERNATIONAL FILTER CO.
325 W. 25th PLACE • CHICAGO, ILL.

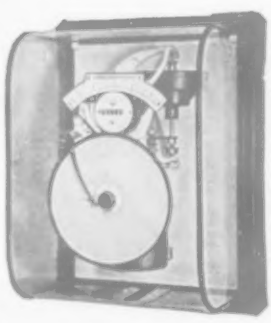
SPARLING

MAIN-LINE WATER METERS

The Master Meters for Service and Satisfaction

R. W. SPARLING

Box 3277 Terminal Annex ..... LOS ANGELES 54
3104 South Michigan Ave. ..... CHICAGO 16
622 Broadway ..... CINCINNATI 2
101 Park Avenue ..... NEW YORK 17
6 Beacon Street ..... BOSTON 8



Totalizer—Indicator—Recorder, Type No. 216
May we send you Bulletin No. 308?

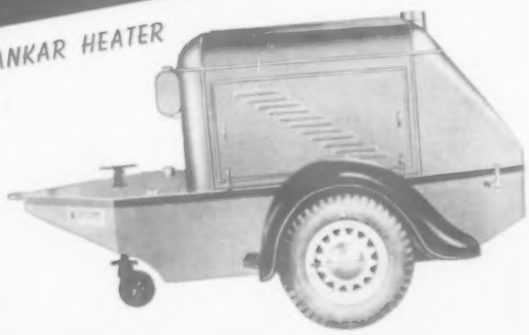
PRESSURE DISTRIBUTOR

ROAD BROOM

BLACK TOP ROAD MAINTENANCE EQUIPMENT
LB
SINCE - 1900

LITTLEFORD

TANKAR HEATER

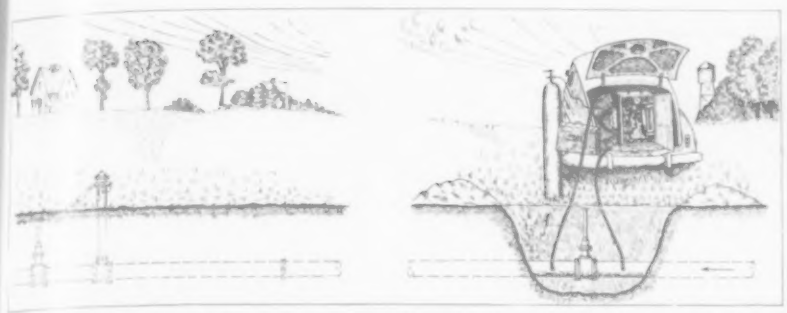


SUPPLY TANK

BLACK TOP ROAD MAINTENANCE EQUIPMENT

The Littleford Trade Mark is in the fight, building and maintaining Airports, Highways, Roads, Barracks and Cantonments. Doing a job to help bring an early peace. After Victory, the Littleford "Trade Mark" will again help to make this world a better place in which to live. Littleford since 1900, has produced Black Top Construction and Maintenance Equipment, and is NOW proud to have the chance to produce for Victory.

LITTLEFORD BROS., INC., 500 E. Pearl St., CINCINNATI, OHIO



This is the way to sterilize a water main: adjust the shut-off valve in water main at point of application so the water pressure on the downstream side is only a third or less than the pressure on the upstream side. The main can now be chlorinated until water tests at the remote hydrant show proper chlorination and sterilization.

Emergency Chlorination

Here is a new versatile chlorinator especially designed for emergency sterilization work. Developed by the Everson Mfg. Co., 214 W. Huron St., Chicago, Ill., the Everson Ster-Elators can be used as either a direct gas or solution feeder. The manufacturer points to its light weight, its sturdiness, and compactness.

Most water departments can use a machine of this nature. When water mains are extended, replaced or repaired, dirty trench water and mud frequently enter the mains and provide a source for the contamination of the water. Mains so damaged cannot be made safe by the regular chlorine dosage. Again, when the pumping station is out of service because of floods, breakdowns or other causes, it may be necessary to draw on wells, lakes or other emergency supplies. Here the SterElator will render excellent service at minimum cost.

Climax Engineering Wins "E" Award

Employees and management of the Climax Engineering Co., Clinton, Iowa, now count themselves among the elect group, eligible to fly the Army-Navy "E" banner in recognition of high achievement in the production of war equipment. This company was presented the award on May 7, at its factory site.

Presentation of the award was made by Brigadier General Norman F. Ramsey, Commanding Officer of the Rock Island Arsenal, and accepted on behalf of the company by Edward F. Deacon, president. Commander A. F. Durenberger presented token "E" pins to the employees.

Walker Named District Manager

James G. Walker has recently been appointed manager of the Transite Asbestos Pipe department, the new York Sales district of Johns-Manville, 22 E. 40th St., New York, 16, N.Y.

J. G. Walker

Mr. Walker assumed his new duties on June 16. A native of Lowell, Mass., his technical training includes two years at Holy Cross and four years at the Massachusetts Institute of Technology.

In 1928 he was employed by the Alpha Portland Cement Co., where he served in an engineering sales capacity until joining Johns-Manville.

Among the many organizations with which Mr. Walker is affiliated are the Engineers Club of New York and the Technology Club of New York.

Portable
TESTING TANKS

These tanks are of heavily galvanized steel and aluminum, sturdy and durable. Made in sizes for tests of 10 gallons and one cubic foot and guaranteed accurate within ¼ of 1%.

This portable testing tank is convenient for use in the meter shop or on the customer's premises. Easy to use.—calibrated in percentages fast and slow.

FORD METER BOX CO.,
WABASH, IND.

Municipalities which have Morris Storm Water and Drainage Pumps need not fear sudden heavy storms, even if severe. These highly efficient, dependable units are protecting scores of municipalities in many sections of the country, and can be furnished for any operating conditions or methods of control.

Bulletin on request

MORRIS MACHINE WORKS
BALDWINSVILLE, N. Y.

MORRIS
CENTRIFUGAL PUMPS
for municipal services

A Dam that
"Earns Its Keep:" —
The Ambursen Type

The Ambursen type (with concrete section of reinforced flat slab and buttress design) was selected for the new Patuxent River dam by the Washington Suburban Sanitary Commission *because*, in the words of Harry R. Hall, Chief Engineer:

"The design selected represents the result of *careful study* and *cost comparisons* with other alternatives such as earth embankment and gravity sections, all with both open and crest-gate spillways, on two different sites."

The Commission's Burnt Mills dam also is of the Ambursen type.

Whether your waterworks is large or small, if an impounding reservoir is involved, you should have the facts on this type of dam.

Write today for details on how to plan a post-war project of this kind.

Ambursen Engineering Corp.
295 Madison Ave. New York

3 IMPORTANT SERVICES for Burroughs users

INFORMATION SERVICE

There is an up-to-date reference library in each Burroughs office. It contains the latest detailed information on the application of machines to today's new accounting problems. This information, as well as the services of Burroughs' technical staff, is available to every Burroughs user.

MAINTENANCE SERVICE

Right now you can arrange for regular, periodic inspection, lubrication and adjustment of your Burroughs machines, to safeguard your office from emergency repairs and the delays they entail. A standard Burroughs Service Agreement provides this efficient protection at a moderate, predetermined cost. All work is guaranteed by Burroughs.

SUPPLY SERVICE

You can also arrange for delivery of Burroughs carbon paper, roll paper, ribbons and other machine supplies manufactured to Burroughs' own specifications. Discounts range from 10% to 40% on quantity purchases under different plans that permit delivery of as little or as much as you need at any one time.

These services, valuable at any time, are especially valuable in wartime. Call the local Burroughs office or write Burroughs Adding Machine Company, Detroit.

Burroughs

ADDING, CALCULATING, ACCOUNTING, BILLING, PAYROLL AND STATISTICAL MACHINES
NATIONWIDE MAINTENANCE SERVICE • OFFICE MACHINE SUPPLIES

MANUFACTURING FOR WAR

The manufacture of aircraft equipment for the Army Air Forces, and the manufacture of Burroughs figuring and accounting equipment for the Army, Navy, U. S. Government and the nation's many war activities, are the vital tasks assigned to Burroughs in the Victory Program.

C. A. Orr, president, Union Metal Mfg. Co., (left) hoists the Maritime "M".

Grand Slam in Wartime Awards

The Union Metal Mfg. Co., Canton, Ohio, well known to engineers and municipal officials for the manufacture of street-lighting standards and metal shells for concrete piles, attained a distinction enjoyed by few industrial concerns in the country when, on July 16, it won the last of the awards for outstanding war contributions—the Maritime "M." At that time, only 89 industrial concerns in the United States had received this award. The company previously has received the Army-Navy "E" and the Treasury Department "Minute Man" flag.

The "M" was presented by Charles E. Walsh, Jr., Director of Procurement, U. S. Maritime Commission. Mr. C. A. Orr, Union Metal president, and John P. Johnson, oldest employee in point of service, jointly accepted the award on behalf of fellow workers. Metal badges were distributed to all the company's 1,280 men and women workers.

Mueller Co. Awarded Army-Navy "E"

The Mueller Co., Decatur, Ill., peacetime makers of valves, hydrants, and other water-works equipment, was honored on May 27 by the awarding of an Army-Navy "E" for wartime production of ammunition and other military equipment.

This is the second citation that this company has received.

Maritime "M" to Lynchburg Foundry

Reading from left to right: U. S. Judge A. D. Barksdale; Gov., C. W. Darden, Jr.; Mrs. Gen. A. A. Vandergrift; C. E. Walsh, U. S. Maritime Service; and Henry E. McWane, president, Lynchburg Foundry.

On July 9 and 10, the employees and management of the Lynchburg Foundry, Lynchburg, Va., manufacturers of cast iron pipe and fittings, and special castings, were presented with the Maritime "M" award. The award was made at the Lynchburg plant on July 9 and at the Radford plant on July 10.

Governor Darden of Virginia made the principal address at Lynchburg and Congressman Woodrum in Radford. President Henry E. McWayne accepted the flags at Lynchburg and Resident Manager Dower at Radford. Both presentations were made by Charles E. Walsh, Jr.

The G-M Truck in Uniform

Here is a picture of the Army "duck." This is nothing more than the old GMC truck built to be as perfectly at home in the heavy surf as on dry land. This unique vehicle can plunge into water of any depth and propel itself as a boat without any steering-gear turnover. It has proved itself invaluable in unloading ships where proper carrying facilities were not available.

PITTSBURGH•DES MOINES

Incineration Plants

End disposal problems for communities large or small—economically, without smoke or odor nuisance—designed, fabricated and erected by the leading organization in the field. Check the advantages of P·DM *High Temperature* incineration—write for Bulletin No. 601!

PITTSBURGH · DES MOINES STEEL COMPANY

Pittsburgh, Pa. . . . 3412 Neville Island
Des Moines, Ia. . . . . 913 Tuttle Street

WATER PRESSURE RELIEF VALVE

★

Sizes: 3" to 36" Angle and Globe Patterns

On excess pressure, due to line surges or excess pumping head, this valve automatically opens to dissipate necessary water volume to maintain desired line pressure. The valve is arranged either with atmospheric pilot valve exhaust or self-contained, according to service conditions and requirements.

Valves may be arranged to open at abnormal pressures and held open under subnormal pressures until the surge subsides, and then close when normal conditions prevail.

Write for Specifications

GOLDEN-ANDERSON VALVE SPECIALTY CO.

Fulton Building Pittsburgh, Pa.

IF YOU'RE MAKING MORE MONEY

...WATCH OUT!

WE WANT TO WARN YOU, before you read this page, that you've got to use your head to understand it.

We also want to warn you that—if you don't bother to read it carefully enough to understand it—you may wake up after this war as poor as a church mouse.

* * *

This year Americans are going to make —minus taxes—125 billion dollars.

But this year, we civilians are not going to have 125 billion dollars' worth of goods to spend this on. We're only going to have 80 billion dollars' worth. The rest of our goods are being used to fight the war.

That leaves 45 billion dollars' worth of money burning in our jeans.

Well, we can do 2 things with this 45 billion dollars. One will make us all poor after the war. The other way will make us decently prosperous.

This way the 45 billion dollars will make us poor

If each of us should take his share of this 45 billion dollars (which averages approximately $330 per person) and hustle out to buy all he could with it—what would happen is what happens at an auction where every farmer there wants a horse that's up for sale.

If we tried to buy all we wanted, we would bid the prices of things up and up and up. Instead of paying $10 for a dress we're going to pay $15. Instead of $5 for a pair of shoes we're going to pay $8.

This bidding for scarce goods is going to raise prices faster than wages. Wages just won't keep up.

So what will people do?

U. S. workers will ask for more money. Since labor is scarce, a lot of them will get it. Then farmers and business men who

feel the pinch are going to ask more money for their goods.

And prices will go *still higher*. And the majority of us will be in that same old spot again—only worse.

This is what is known as Inflation.

Our government is doing a lot of things to keep prices down . . . rationing the scarcest goods, putting ceiling prices on things, stabilizing wages, increasing taxes.

But the government can't do the *whole job*. So let's see what *we* can do about it.

This way the 45 billion dollars will make us prosperous

If, instead of running out with our extra dough, and trying to bid on everything in sight, we buy only what we absolutely need, we will come out all right.

If, for instance, we put this money into (1) Taxes; (2) War Bonds; (3) Paying off old debts; (4) Life Insurance; and (5) The Bank, we don't bid up the prices of goods at all. And if besides doing this we (6) refuse to pay more than the ceiling prices; and (7) ask no more for what we have to sell—no more in wages, no more for goods—*prices stay where they are now.*

And we pile up a bank account. We have our family protected in case we die. We have War Bonds that'll make the down payment on a new house after the war, or help us retire some day. And we don't have taxes after the war that practically strangle us.

Maybe, doing this sounds as if it isn't fun. But being shot at up at the front isn't fun, either. You have a duty to those soldiers as well as to yourself. You *can't* let the money that's burning a hole in your pocket start setting the country on fire.

* * *

This advertisement, prepared by the War Advertising Council, is contributed by this Magazine in co-operation with the Magazine Publishers of America.

KEEP PRICES DOWN!

Use it up
Wear it out
Make it do
Or do without

Worthington Pump Moves Advertising Office

Worthington Pump and Machinery Corp. has now located its advertising office at 744 Broad St., Newark 2, N. J., according to a recent announcement. Adin L. Davis, recently appointed Advertising Manager, heads the department and will direct all advertising, sales promotion, and publicity activities for the corporation.

A. L. Davis

Mr. Davis formerly was sales promotion manager for the construction equipment division of the corporation.

A "Rota-Sight" flow indicator.

Sight Flow Indicator

Wherever the rate of flow of a liquid or vapor gas needs to be controlled or recorded, the new "Rota-Sight" indicator, made by the Fischer & Porter Co., Dept. 975, County Line Road, Hatboro, Pa., assumes importance. This simply constructed flow indicator clearly shows when liquid or gas is flowing through the line. In addition, its indicating float moves up and down in a pyrex tube in direct proportion to the amount of flow. Instantaneous response to flow change is obtained by the uniquely designed pyrex tube into which the flutes are formed. The indicator is particularly sensitive to low flows and informs the operator the very second that the flow starts.

The "Rota-Sight" may be equipped with an alarm which is a positive and inexpensive device for visible and audible protection against dangerously low or high flows.

Details are described in a leaflet published by this company, Bulletin 92-A.

Jeffrey

FOR A COMPLETE LINE OF SEWAGE AND WATER-TREATMENT EQUIPMENT . .

Bar screens (mechanically-cleaned)
Chemical feeders (electric vibrating)
Flocktrols (controlled flocculation)
Grit washers
Grit collectors
Primary and secondary sludge collectors
Sludge elevators
Screenings grinders
Scum removers
(All Patented)

Jeffrey engineers have had years of experience—have made many installations—can offer technical data on both equipment and plant design. Write

The Jeffrey Mfg. Co.

970-99 NORTH FOURTH STREET
COLUMBUS, OHIO

Baltimore, Birmingham, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Denver, Detroit, Harlan, Houston, Huntington, Milwaukee, New York, Philadelphia, Pittsburgh, St. Louis, Salt Lake City, Scranton

HYDRO-TITE

The dependable self-caulking joint compound for jointing cast iron water mains — uniform — easy to prepare — easy to use — in service for more than 30 years.

HYDRAULIC DEVELOPMENT CORPORATION
50 Church St., New York, N. Y.

FIBREX — A sanitary packing used like braided jute — will not breed bacteria — 30% lighter than jute — put up in 60 pound reels.

DRY BRAIDED
Fibrex

★ ★

TODAY BETTER BROOM FIBRES ARE A "MUST"...

AFRICAN BASS FIBRES

INDIA PALMYRAH STALKS

The longer mileage you obtain in broom fibres means less time-taking refilling of the broom core and valuable man-hours put to an extra use. Fresh, high-quality fibres in your mechanical sweeper are sound and wisely important economy in these times.

We are able to service every need in all types and sizes. We would be happy to receive your request for samples and quotations.

MOUNTAIN HICKORY SPLINTS

STEEL WIRE

The OTTO GERDAU CO.

533 Canal St., New York, N. Y.

PROFESSIONAL SERVICE DIRECTORY

ALBRIGHT & FRIEL, INC.
Consulting Engineers
Water, Sewerage, Garbage and Valuation Problems
1520 Locust St.
Philadelphia, Penna.

BARKER & WHEELER
36 State Street — Albany, N. Y.
11 Park Place — New York City
Water Supply — Public Utility and Industrial Valuations
Sewerage
Sewage Disposal — and Rates
Power

Burns & McDonnell Engr. Co.
Consulting Engineers Since 1897
Waterworks, Light and Power, Sewerage, Reports, Designs, Appraisals, Rate Investigations
Kansas City, Mo. 107 W. Linwood Blvd.

ROBERT HALL CRAIG
Consulting Engineer
Municipal Problems
Utility Rates—Town Planning—Water and Sewage Systems—Economic Surveys.
HARRISBURG, PENNSYLVANIA

ALVORD, BURDICK & HOWSON
John W. Alvord — Chas. B. Burdick
Donald H. Maxwell — Louis R. Howson
Water Works — Sewage Disposal
Water Purification — Drainage
Flood Relief — Appraisals
Sewerage — Power Generation
CIVIC OPERA BLDG., CHICAGO, ILL.

BLACK & VEATCH
Consulting Engineers
Sewerage, Sewage Disposal, Water Supply, Water Purification, Electric Lighting, Power Plants, Valuations, Special Investigations and Reports.
1206 Broadway, Kansas City, Mo.

JAMES M. CAIRD
Assoc. Am. Soc. C.E.
CHEMIST and BACTERIOLOGIST
OFFICE AND LABORATORY
Cannon Building, Troy, N. Y.
Water Analysis and Tests of Filter Plants

S. R. DE BOER & CO.
Consulting City Planners
Post-war City and Neighborhood Plans—Economic—Social—Recreational
515 E. Iliff Ave. Denver, Colo.

The American Public Utilities Bureau
Organized to assist municipalities and public groups in utility valuations, rates, franchises, accounting and surveys.
John Bauer, Ph.D., Director
280 Broadway New York City

Clinton L. Bogert
Consulting Engineer
Water Supply and Purification
Sewerage and Sewage Disposal
Timber, Steel and Reinforced Concrete Structures
621 Madison Avenue
New York City

Campbell, Davis & Bankson
The Chester Engineers
Water Supply and Purification, Sewerage and Sewage Treatment, Power Development and Applications, Valuations and Rates.
210 Parkway at Sandusky St., Pittsburgh, Pa.

DeLEUW, CATHER & CO.
Water Supply — Sewerage
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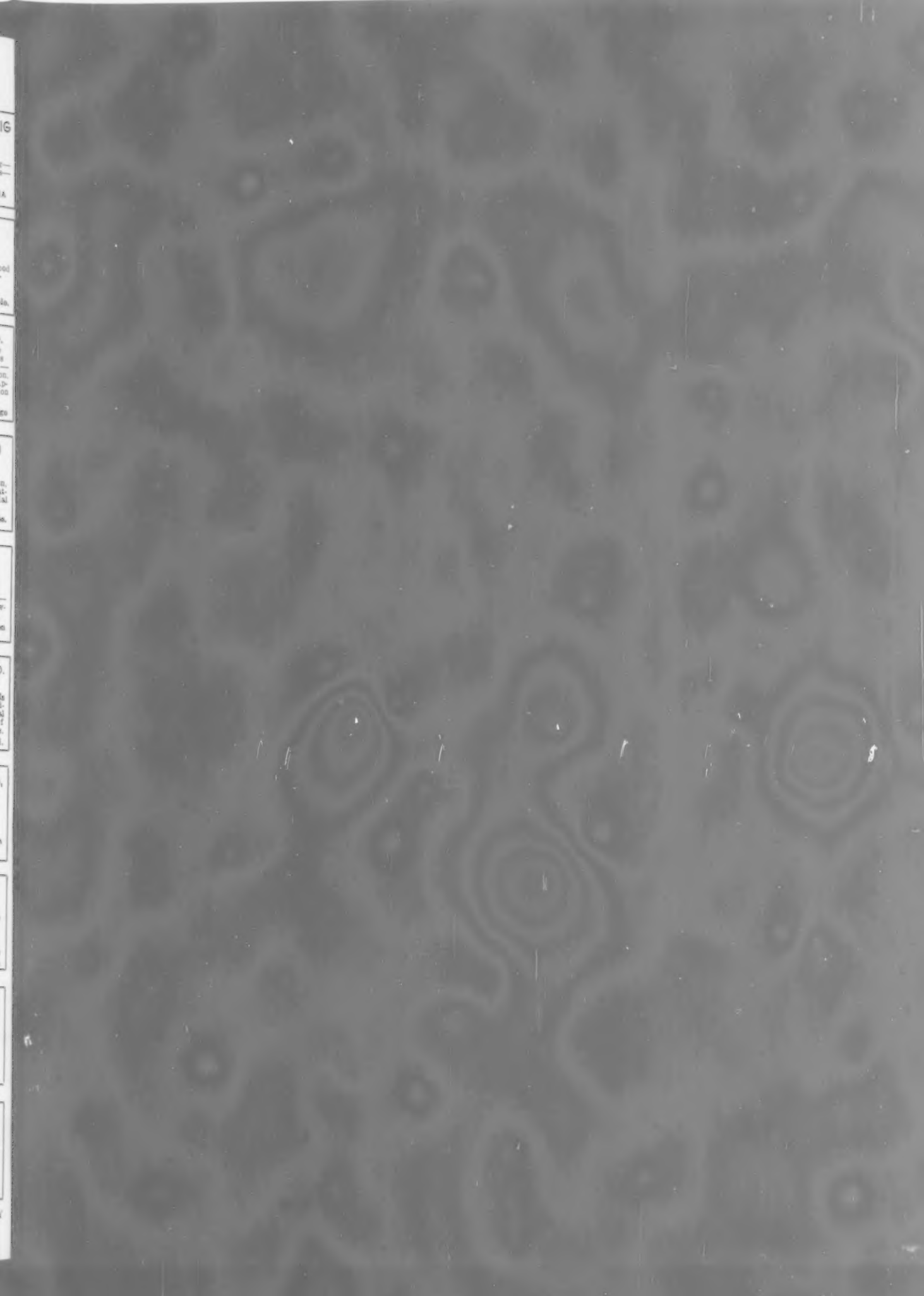

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The American City

HOW SHALL WE LIVE AFTER THE WAR?

By ABEL WOLMAN

MAYBE this is an academic question for Americans. Two years ago we knew we would live after the war, but we were not quite sure how. Today we are pretty confident we shall live in the American way. That means in decent cities, on decent farms, in first-class industrial plants. Now that this prospect is reasonably clear, we can move on to thinking about the post-war job, while we even tighten up on the first assignment of winning the war!

Sanitary and civil engineers have spent their lives advocating the kind of world our people should live in. At least from the purely environmental standpoint, it is not a difficult world to create and not an impossible one to pay for.

Some of the elements are easy to list:

1. An adequate, safe, and satisfactory water supply
2. Sanitary disposal of domestic and industrial wastes
3. Streets and roads that are well built, well lighted, well maintained
4. Fire and police departments properly trained and equipped
5. Plenty of parks, parkways, playgrounds, and swimming pools
6. Banishment of slums, and building of well-planned home neighborhoods

To get these elements is a job of decent housekeeping, public and private. To provide them for post-war requires no major flights of the imagination, no economic revolutions, no frantic conflicts in political philosophies.

To do the job, however, does require forethought, energy and action now for:

(a) Appraisal of needs
(b) Development of orderly programs
(c) Preparation of detailed plans and specifications for the needs
(d) Development of funds
(e) Clearing of legal restrictions
(f) Scheduling construction, with purchase of needed land and rights of way.

Mere wishful thinking or listing of projects is not the same as being actually ready for construction in harmony with a comprehensive master plan.

Doing the job we have outlined is preparing for living!—not for "boondoggling"!